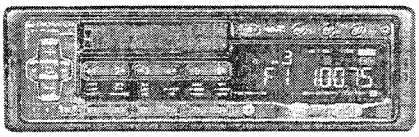
PIONEER
The Art of Entertainment

Service Manual

• KEH-P7200RDS/EW



ORDER NO.
CRT1653

MULTI-CD CONTROL FM/MW/LW TUNER DECK AMPLIFIER

KEH-P7200RDS EW
KEH-P7100RDS EW
KEH-P6200RDS EW
KEH-P6100RDS EW
KEH-P25RDS EW
KEH-P15RDS EW

NOTE:

- **Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.**
- **See the separate manual CX-631(CRT1640) for the cassette mechanism description.**
- **The cassette mechanism employed in this model is one of 2L mechanism series.**

CONTENTS

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K-FFU. JAN. 1995 Printed in Japan

1. SPECIFICATIONS

General
Power source ..... 14.4 V DC (10.8 — 15.6 V allowable)
Grounding system ..... Negative type
Max. current consumption ..... 8.5 A
Dimensions (chassis) ..... 178 (W) × 50 (H) × 150 (D) mm
(front face) ..... 188 (W) × 58 (H) × 19 (D) mm
Weight ..... 1.3 kg

Amplifier
Maximum power output ..... 35 W × 4 (EIAJ)
Continuous power output ..... 22 W × 4 (DIN 45324, +B = 14.4 V)
Load impedance ..... 4 Ω (4 — 8 Ω allowable)
Preout output level/output impedance..... 500 mV/1 kΩ
Tone controls (bass) ..... ±12 dB (100 Hz)
(treble) ..... ±12 dB (10 kHz)
Loudness contour ..... +10 dB (100 Hz), +7 dB (10 kHz)
(Volume: –30 dB)

Tape player
Tape ..... Compact cassette tape (C-30 — C-90)
Tape speed ..... 4.76 cm/sec.(+0.14 cm/sec.,-0.05 cm/sec.)
Fast forward/rewind time ..... Approx. 100 sec. for C-60
Wow & flutter ..... 0.09 % (WRMS)
Frequency response ..... Metal: 30 — 19,000 Hz (±3 dB)
Stereo separation ..... 45 dB
Signal-to-noise ratio
..... Metal: Dolby B NR IN: 67 dB (IEC-A network)
Dolby NR OUT: 61 dB (IEC-A network)

FM tuner
Frequency range ..... 87.5 — 108 MHz
Usable sensitivity ..... 11 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity ..... 16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio ..... 70 dB (IEC-A network)
Distortion ..... 0.3 % (at 65 dBf, 1 kHz, stereo)
Frequency response ..... 30 — 15,000 Hz (±3 dB)
Stereo separation ..... 40 dB (at 65 dBf, 1 kHz)

MW tuner
Frequency range ..... 531 — 1,602 kHz
Usable sensitivity ..... 18 μV (25 dB) (S/N: 20 dB)
Selectivity ..... 50 dB (±9 kHz)

LW tuner
Frequency range ..... 153 — 281 kHz
Usable sensitivity ..... 30 μV (30 dB) (S/N: 20 dB)
Selectivity ..... 50 dB (±9 kHz)

Note:
Specifications and the design are subject to possible modification without notice due to improvements.

2. OPERATION AND CONNECTION

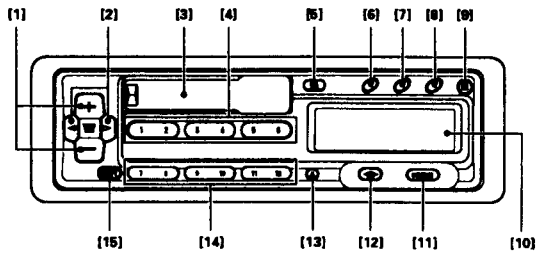


Fig. 1

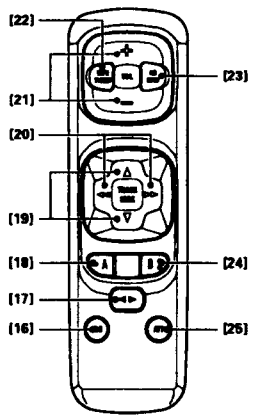


Fig. 2

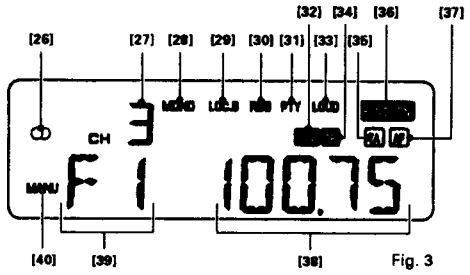


Fig. 3

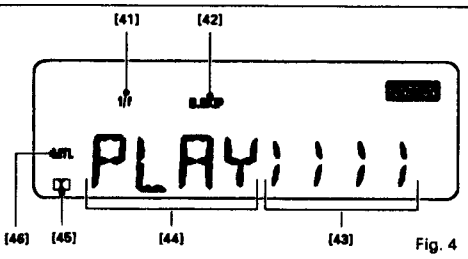


Fig. 4

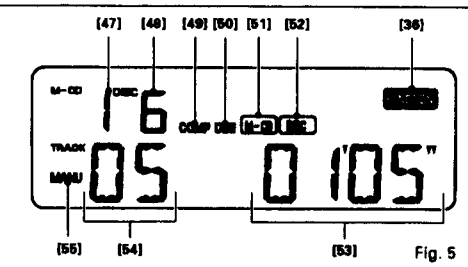


Fig. 5

Adjusting Volume and Tone

Parts Identification

Fig. 1
[1] Volume/Audio adjustment
[3] Cassette door
[5] Eject
[10] Display
[11] Source selector
[14] ⑦ AUX ON/OFF
[15] Shift/Source level adjuster

Switching Power On

Radio
Press button [11] to switch the tuner power on. Press button [11] again to switch the power off.

Tape
Insert the cassette tape through the cassette door [3], and the power will be automatically turned on to start the tape being played back. To eject the tape, press button [5].

Changing the Source

When the cassette tape is inserted, the source changes at each press of the button [11]: Tape → Radio → OFF.
When an optional multi-play CD player (CDX-P1210, CDX-P610) is connected to your unit, the source changes as follows: Tape → Radio → Multi-play CD player → OFF.
If another audio component is connected to the IP-BUS terminal with an optional conversion cord, set the AUX to ON by doing as follows. Hold down button ⑦ in Bank [14] and set the ignition switch from OFF to ON.
In this case, the source changes as follows: Tape → Radio → (Multi-play CD player) → AUX → OFF

Adjusting Audio

Press button [1] to adjust the volume. Each press of button [15] changes the display and the function of button [1] as follows: Volume → Fader (Balance) → Bass (Treble) → Loudness (ON/OFF) → F. I. E. mode.
- If no operations are performed within 8 seconds, adjustment modes are canceled. Make adjustments within 8 seconds.
- If the (◄) or (►) side of button [2] is pressed when "FAD" is shown on the display, it changes to "BAL", and the balance can be adjusted. To switch from Balance to Fader, press the (+) or (–) side of button [1], and the display and button [1] function becomes Fader.
- When "BAS" is indicated on the display, press the (►) side of button [2] to switch to "TRE". When "TRE" is displayed, press the (◄) side of button [2] to switch to "BAS".
- When you're adjusting fader, balance, bass or treble settings, the indicator will stop at the center setting.

Adjusting Volume
Pressing the (+) side of button [1] increases the volume, while the (–) side decreases it. (Display shows "VOL 00" ~ "VOL 30".)
- *When driving your vehicle, be sure to keep the volume of the unit set low enough to allow you to hear sounds coming from outside.*

Adjusting the Fader
When you press the (+) side of button [1], the front speaker volume increases gradually while the rear speaker volume decreases. When you press the (–) side of button, the rear speaker volume increases gradually while the front speaker volume decreases. (Display shows "FAD F15" ~ "FAD R15".)
- Please set "FAD 0" when using 2 speaker system.

Adjusting Balance
Pressing the (◄) side of button [2] shifts the balance to the left speaker, while the (►) side shifts it to the right speaker. (Display shows "BAL L9" ~ "BAL R9".)

Adjusting Bass
Pressing the (+) side of button [1] increases bass, while the (–) side decreases bass. (Display shows "BAS –6" ~ "BAS +6".)

Adjusting Treble
Pressing the (+) side of button [1] increases treble, while the (–) side decreases treble. (Display shows "TRE –6" ~ "TRE +6".)

Using the Loudness Control
Pressing the (►) side of button [2] turns the loudness function on, and "LOUD" [33] appears on the display. Pressing the (◄) side of button [2] turns it off. This loudness function supplements the insufficiency of low- and high-frequency ranges when the volume is low.

Switching the F. I. E. function
Pressing the (►) side of button [2] turns the F. I. E. (Front Image Enhancer) function on. Pressing the (◄) side of button [2] turns it off. (refer to following section.)

Using the F. I. E. function

The F. I. E. (Front Image Enhancer) function cuts middle and high range frequency output from the rear speakers so that only low-range frequencies are output, for a simple way to enhance front imaging.
1. Press button [15] to switch to the F. I. E. mode (See "Adjusting Audio").
2. Press the (►) side of button [2] to switch the F. I. E. mode ON.
3. Switch to the Fader mode, and balance front volume and rear bass volume (See "Adjusting the Fader").
4. Adjust volume and tone.

> ***Note:***
> - *If you turn off the F. I. E. function, the rear speakers will output all sounds in addition to the bass sounds. This will cause a sudden increase in volume. Therefore, be sure to reduce the volume before turning off the F. I. E. function.*

Using Source Level Adjuster
(KEH-P7200RDS, KEH-P7100RDS)

You may wish to adjust volume when you have changed the source to radio, tape, or CD or AUX or when you have changed the radio band from FM to MW/LW. You can do so on the basis of the FM volume as follows:
1. Use the button [11] to change the source. (In case of radio, change the band to MW/LW.)
2. Hold down the button [15] for about 2 seconds, and the display will show you the volume of the source. (Display shows "V –4" ~ "V +4".)
3. Pressing the (+) side of button [1] raises the volume and pressing the (–) side lowers it. About 8 seconds after completion of the adjustment, the display returns to what it was showing before the adjustment.
- No adjustment can be made when an FM station is tuned in.

Regarding the Cellular Telephone Muting

When a call is received or placed with a cellular telephone, the cellular telephone muting will turn ON. When the phone is hung up, the muting will be canceled.
- The volume is reduced to a low level.
- "CALL" will be displayed.
- The audio operation can not be done except volume control.

Using the Radio

Parts Identification

Fig. 1
[2] Tuning
[4] Preset
[4] ① Tuning Step
[6] TA/PTY Alarm cancel
[7] AF/REG
[10] Display
[11] Source selector
[12] Band
[13] Function ON/OFF
[14] Preset (FM1)
[14] ⑦ Frequency display/PTY display
[14] ⑧ PTY
[14] ⑨ Local Station
[14] ⑪ Preset scan/Best Stations Memory (BSM)
[14] ⑫ FM stereo, mono/Seek, Manual

Fig. 3
[26] FM stereo
[27] Preset number
[28] FM mono
[29] Local Station
[30] REG
[31] PTY
[32] EON
[34] TP
[35] TA
[36] Function Indicator
[37] AF
[38] Frequency
[39] Band
[40] Manual

Listening to the Radio

• **Electronic Tuner**
Frequency allocation differs depending upon the area. This unit has been designed in accordance with the frequency allocations for Western Europe, Asia, the Middle and Near East, Africa, Australia and Oceania. Use in other areas may result in improper reception of AM.
The RDS function does not work in regions with no RDS broadcast services.

1. **Press button [11] to switch the radio power on.**
2. **Press button [12] to select a band.**

F 1→F2→MW/LW
(FM1) (FM2) (MW/LW)

When the frequency is changed with button [2], MW (531 — 1,602 kHz) and LW (153 — 281 kHz) are switched automatically.
3. **Use seek tuning to tune in a frequency.**
Ensure that "MANU" [40] is not indicated on the display. (When display indications are lit, press button ⑫ in Bank [14] for 2 seconds or more to switch OFF.) Press either the (◄) side or the (►) side of button [2].
When the (►) side is pressed, the tuner will automatically receive high frequencies.
When the (◄) side is pressed, it will automatically receive low frequencies.
4. **Adjust volume and tone.**
5. **Assign the tuned frequency to one of the buttons in Bank [4] (the buttons in Bank [14] are also used in FM1) (Preset memory).**
Press and hold down one of the buttons in Bank [4] (FM1: [4], [14]) for at least 2 seconds. The frequency is assigned to the selected button when the preset number [27] stops flashing on the display. Up to 18 FM stations (12 for FM1 and 6 for FM2), and 6 MW/LW stations can be assigned to the preset memory buttons in Bank [4] (FM1: [4], [14]).
6. **Once a frequency is assigned to a button in Bank [4] (FM1: [4], [14]), you just need to press that button to tune it in.**
This also causes the number of the button pressed to appear at position [27] on the display.

Function Mode

The buttons in Bank [14] can be used as the function buttons. Since 12 stations can be preset for FM1, the function is turned on or off with button [13]. Since only 6 stations can be preset for FM2 and MW/LW, the function is automatically turned on. When the function is turned on, subsequent operations can be performed.

Manual Tuning

Use manual tuning when stations are too weak to be picked up by seek tuning.
1. Turn on "MANU" [40] by holding down button ⑫ in Bank [14] for 2 seconds or more.
2. Each press of the (►) side of button [2] increases the frequency in 50 kHz steps in the FM band, 9 kHz in the MW band and 1 kHz in the LW band.
Pressing the (◄) side of button [2] decreases the frequency. Holding down either side of button [2] changes the frequency at high speed.

Adjusting Seek Sensitivity

The seek tuning function of this tuner lets you select between a local setting for reception of strong stations only, and a DX (distant) setting for reception of weaker stations. The local setting also has 4 seek tuning sensitivity levels for FM and 2 levels for MW/LW to match local conditions.

Changing the Local Seek Sensitivity
1. Use button [12] to select a band.
2. Hold down button ⑨ in Bank [14] for more than 2 seconds, and the display will show you the current local seek sensitivity for about 5 seconds.
3. While the local seek sensitivity remains on the display, press the (►) side of button [2] to increase the sensitivity level, and the (◄) side to decrease the level as shown below.
FM : LOC-1 ⇄ LOC-2 ⇄ LOC-3 ⇄ LOC-4
MW/LW: LOC-1 ⇄ LOC-2
The LOC-4 setting allows reception of only the strongest stations, while lower settings let you receive progressively weaker stations.
• The display of local seek sensitivity returns to the frequency when about 5 seconds have elapsed after the change of sensitivity.

Switching between Local and DX
Press button ⑨ in Bank [14] to switch between Local and DX (distant) seek tuning. When "LOC.S" [29] is shown on the display, seek tuning is performed with the local seek sensitivity. Otherwise, seek tuning is performed with the DX seek sensitivity.

Switching between FM Stereo and Mono

Generally, it is best to allow the ARC (Automatic Reception Control) function to automatically set the optimum listening conditions. When stereo broadcasting is received, "◯" [26] will appear on the display. When there is a large amount of noise, you can press button ⑫ in Bank [14] for clearer mono reception ("MONO" [28] will appear on the display).

BSM (Best Stations Memory)

This function automatically locates stronger stations and automatically assigns their frequencies to the buttons in Bank [4] (FM1: [4], [14]), from strongest to weakest. It comes in handy when trying to find local stations while driving.
1. Press button [12] and select a band.
2. Holding down button ⑪ in Bank [14] for about 2 seconds will start BSM search. At this time, "BSM" will flash on the display.
3. The frequency display will return once BSM search is complete, and frequencies are assigned to buttons ① through ⑥ (FM1: ① through ⑫) in Bank [4] (FM1: [4], [14]).
• At the end of the BSM search, the displayed frequency is that assigned to button ① in Bank [4].
• You can cancel BSM search by pressing button ⑪ in Bank [14] again.
• *If there are fewer than 6 (FM1: 12) strong stations in the area, some of the buttons in Bank [4] (FM1: [4], [14]) will not be assigned frequencies, so they will retain any frequencies assigned to them previously.*
• *BSM search may take as long as 30 seconds in areas where there are few strong stations.*

Preset Scan Tuning

This function lets you automatically monitor the stations assigned to the preset buttons.
1. Press button ⑪ in Bank [14]. The frequency will appear on the display [38] and the preset number [27] will blink. Each station assigned to the buttons in Bank [4] (FM1: [4], [14]) will be automatically tuned in for about 8 seconds.
2. When you hear a station that you like, press button ⑪ in Bank [14] again to cancel preset scan tuning and remain at that station.
• Stations stored in memory under the buttons [4], [14] but whose signal is weak will not be recalled.

Using the RDS Function

What is RDS?
RDS (Radio Data System) according to a CENELEC EN50067 is a system for transmitting data signals from FM broadcast transmitter along with the normal sound program. These data signals, which are imperceptable to listeners, are intended to aid radio listeners in tuning their receivers to a desired station. RDS receivers can decode these data signals for display or control purposes.
RDS digital signal includes various data, such as PI, PS, AF, TP, TA, EON and PTY.
PI .....Program Identification Code
PS .....Program Service Name
AF .....List of Alternative Frequencies
TP .....Traffic Program Identification Code (Similar to SK signal of ARI system)
TA .....Traffic Announcement Code (Similar to DK signal of ARI system)
EON .....Enhanced Other Network Information Code.(In some countries, EON is not offered by broadcasters.)
PTY .....Program type ID code

RDS Function of this Unit
This unit has the following functions for making use of RDS data.
• PS, the name of the currently listened station is displayed.
• AF (Alternative Frequency) function. This enables the receiver to automatically retune to more suitable frequencies transmitting the same program.
• TP/TA, EON, user selectable reception of the traffic information service, offered by RDS.
• PTY codes enable you to automatically receive stations broadcasting the same program content.

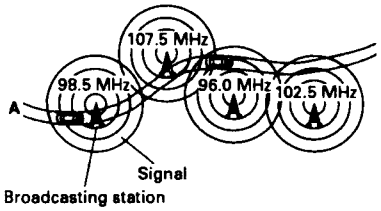
Network/Station Name Display
Switch the tuner on and choose one of the 2 FM bands.
When you tune into an RDS station with manual or seek tuning, the frequency display changes to the network/station name display after a few seconds by means of the PS code.
• The RDS functions of this unit use RDS codes transmitted along with FM broadcasts. RDS doesn't work on the MW or LW bands.
• The RDS functions may not work properly in areas where the RDS transmissions are at an experimental stage or where there are flaws in the broadcasting system.

- Hold down button ⑦ in Bank [14] for more than 2 seconds to change the network/station name display to the frequency display. The frequency will be displayed only while the button is being held down.

AF Function

This receiver retunes automatically to a more suitable transmitter, contained in the list of Alternative Frequencies (AF), to enable the motorist to keep listening to programs in the same network.

Example:
If a motorist travels as shown below, from point A to point B, (and has selected AF function) then the receiver will automatically retune to a more suitable frequency transmitting the same program. This is shown by the automatic retuning from 98.5 MHz to 107.5 MHz to 96.0 MHz to 102.5 MHz.



To activate the Alternative Frequency Function, press button [7], "AF" [37] will appear on the display. Once tuned to a RDS station, as long as you drive within an area served by the same network, the receiver will automatically retune to a more suitable station transmitting the same program, by utilizing the data in the AF list.

- "PI SEEK" will appear on the display, if the AF function has been selected, and a suitable AF station cannot be found. In this case, the receiver will mute the radio sound and search the frequency band, in order to find a station with the same PI code. The receiver will return to the original frequency if the same or related PI code cannot be found.
- The AF function will not work in the following cases:
  — when the receiver is tuned to a non-RDS station. (local station)
  — when the RDS station does not transmit any AF list data.
  — when the receiver cannot receive the AF list due to disturbances.

  When the receiver is unable to find a PI code the "AF" [37] indicator will flash on the display.
  Thus indicating that the AF function cannot be performed.

Preset recall

- When recalling preset stations in the AF mode, the tuner will be tuned to the stored frequency and the AF function will be operative i.e. when the signal of the recalled station is weak or has a different PI, the radio will look into the AF list and if necessary start a PI-seek in order to find a station with the same or related PI code. When the tuner is performing a PI seek "PI SEEK" is shown on the display.
  If the PI seek is successful, the tuner will be tuned to the new frequency that transmits the same program service (i.e. with the same PI code) and the display will show the stored PS.
  If the PI seek is not successful, the tuner will return to the stored frequency. If a new station (with a different PI code) would be received on this frequency, this station will become audible. The display will show the frequency instead of PS.
- When recalling preset stations in the AF=OFF mode, the tuner will be tuned to the stored frequency and the display will show the stored PS. In case the tuned station has a PI code that is different from the stored one, the tuner will accept the new PI code and stay tuned to the initial frequency. The display will show the new PS when the signal of the tuned station is strong enough.

Listening to Regional Stations

In some countries a particular program service may "opt out" during a certain part of the day in several regional variants at particular locations. Since these regional variants are broadcasting a different program they temporally have a PI and a PS that is different from the main program service. The PI's are mostly "generically linked". The AF list may either be common for all regional variants or each regional variant may have its own AF list.
In other countries there may be regional stations which are not an "opt out" of a particular main program service but which have an independent existence. These regional stations all have a different PS. Their PI's may be "generically linked" and their AF lists may carry frequencies which are alternatives for that regional station only.

---

1) Regional OFF Mode
When AF is ON and REG is OFF, the receiver will switch automatically to strong stations that are likely to be broadcasting the same program but which do not necessarily match the region code. This is of benefit when the regional variants just carry the same program, but will become annoying if the receiver switches back and forth between different programs. In this case it is recommended to put the receiver in the REG ON mode.

2) Regional ON Mode
When AF is ON and REG is ON, the receiver switches automatically only to stations that precisely match the region code and are therefore definitely broadcasting the same program.

REG ON/OFF
To put the radio in the REG ON mode, press button [7] for more than 2 seonds. "REG" [30] will appear on the display. To cancel the REG ON mode i.e. to put the radio back in the default REG OFF mode, press button [7] again. "REG" [30] will disappear from the display.

PTY function

This unit's PTY function uses the PTY codes put out by the RDS station to provide 3 functions: PTY Display, PTY Seek and PTY Alarm.

- PTY Display is a function that shows the program type of a received station if the broadcast station is an RDS station and is putting out a PTY code.
- PTY Seek is a function that receives RDS stations broadcasting the program type that the user has selected beforehand.
- PTY Alarm is a function that receives an RDS station after picking up an emergency PTY alarm code put out by that station when a natural disaster or nuclear accident, etc., has occurred.

PTY indication switching
When an RDS station is received, the network/station name display appears. At this point, if the unit has picked up the PTY code, press button ⑦ in Bank [14] and PTY (program type) will be displayed for about 8 seconds.

- PTY display contents are of the following 16 types: NO PTY, AFFAIRS, CLASSICS, CULTURE, DRAMA, EASY MUS, EDUCATE, INFO, L. CLASS, NEWS, OTH MUS, POP MUS, ROCK MUS, SCIENCE, SPORT, VARIED
- Some stations may broadcast program contents that differ from the PTY code.
- "NO PTY" is displayed when no PTY code can be picked up from the received station.

Setting the program type

1. Press and hold down button ⑧ in Bank [14] for at least 2 seconds to switch to the PTY setting mode. ("PTY" [31] will light and the program types will be shown on the display for about 5 seconds.)
2. While the program types are shown on the display, press the (◄) side or (►) side of button [2] to select the type that you want.

Note:
In the CURRENT mode, if the currently received station is an RDS station and the PTY code has already been picked up, then the program type is automatically set to match that station's PTY code.

PTY SEEK
For automatic reception of RDS stations having the PTY code that you have selected beforehand.
Pressing button ⑧ in Bank [14] causes your selected program type to flash on the display and PTY SEEK to begin.
("PTY" [31] flashes)

- If PTY SEEK is unsuccessful, "NO PTY" will be shown on the display for about 2 seconds, after which it will return to the station received before PTY SEEK began.
- Non TP RDS stations may be received during PTY seek even if TA (Traffic Information Standby) is on. In this case an alarm sounds about 30 seconds to tell you that it is not a TP station.
- PTY seek automatically receives RDS stations having a different PI code with the set PTY code with the set PTY code. However, it will return to the previous station if "NO PTY" is displayed.

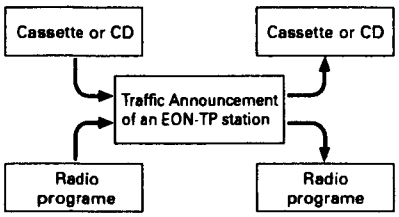
PTY Alarm
Among the PTY codes there is also one for emergency announcements warning of natural disasters, nuclear reactor accidents, etc. In case of such disasters, RDS stations may output this emergency PTY alarm code. When this unit is ON (not during MW/LW reception), and this PTY code is picked up, "ALARM" will light on the display, volume will be set to TA interrupt level, and that RDS station will be received. When the RDS station stops putting out the emergency PTY alarm code, the unit will return to the previous source. To return to the previous source during reception of the emergency program, press button [6].

Traffic Information Reception

TP and EON-TP function

When a traffic information station (TP station) is selected, "TP" [34] lights on the display, thus indicating traffic report can be received through this station. The "EON" [32] and "TP" [34] will light on the display when a selected station (this network) is broadcasting EON information which cross-references at least one program service which carries traffic information, thus indicating traffic report can be received through another program service by using the EON function of this unit.
In both cases, by briefly pressing button [6], traffic report waiting status will be entered.

Traffic information reception by EON-TP



Traffic Announcement Volume Adjustment

- The volume of the traffic announcement is temporarily stored in memory. The next time a report is received, the volume will be at the previous setting.

TP Alarm Function

- In TA mode, about 30 seconds after "TP" [34] disappears from the display, which occurs if the signal from the TP station becomes weak, an alarm sounds for 10 seconds to tell you to tune to another TP stations.

TA Reception during CD or Cassette Play

- If the radio is already set to the FM band and tuned to a TP or EON-TP station, even when listening to the cassette or the multi-play CD player, when the button [6] is pushed ("TA" [35] is shown on the display), traffic report waiting will begin. When a traffic report begins, the system will switch from cassette or CD to the traffic report.

BSA function

- While button [6] is on, ("TA" [35] is shown on the display) and AF function is off, and you are listening to either the cassette or multi-play CD player, should the TP station become weak, the radio will start BSA (Best TP Station Auto Search) 10 seconds after "TP" [34] disappears from the diplay. The tuner will automatically tune to the strongest TP station in the area, and will stand by for a traffic bulletin. BSA does not work when the AF function is selected, so turn the AF function off by pressing button [7] when you want to use BSA.

TP Alarm Function

- In AF mode, about 30 seconds after "TP" [34] disappears from the display, which occurs if the signal from the TP station becomes weak, an alarm sounds for 10 seconds to tell you to tune to another TP station.

Tuning Functions on each RDS mode

Tuning Mode	AF Mode	TA Mode & AF plus TA Mode
Seek Tuning will stop to find,	RDS Stations	TP or EON-TP Stations
BSM will select and memorize in presets,	RDS Stations	TP Stations

Non-RDS stations such as those using the Swedish MBS system may be tuned in as RDS stations, but this is due to both systems using the same 57 kHz subcarrier frequency and is not a malfunction of the unit.

Tuning Steps

The tuning step is normally 50 kHz during seek tuning on an FM band. However this tuning step changes to 100 kHz when the set is in AF or TP mode. In some countries it may be desired to set a tuning step of 50 kHz in AF mode by holding down the button ① in Bank [4] while turning the ignition key from OFF to ON.

- During manual tuning, the step does not change; it remains fixed at 50 kHz.
- The tuning step will return to 100 kHz if the batteries supply is temporarily disconnected or the clear button is pressed.
- In AF mode, only those stations being broadcast at 100 kHz steps are subject to AF reception (CENELEC STANDARD).

Using the Tape Deck

Parts Identification

Fig. 1
[2] Fast Forward, Rewind/Music search
[3] Cassette door
[5] Eject
[10] Display
[12] Direction change/Release
[14] ⑦ Flex (1/f)
[14] ⑧ Dolby B NR
[14] ⑨ Blank Skip (B. SKIP)
[14] ⑫ Repeat (RPT)

Fig. 4
[41] Flex (1/f)
[42] Blank Skip (B. SKIP)
[43] Tape running direction indicator
[44] Play indicator
[45] Dolby B NR
[46] Metal

About Cassette Tapes

- *Do not use tapes longer than C-90-type (90 min.) cassettes. Longer tapes can interfere with tape transport.*
- *A loose or warped label on a cassette tape may interfere with the eject mechanism of the unit or cause the cassette to become jammed in the unit. Avoid using such tapes or remove such labels from the cassette before attempting use.*
- *Storing cassettes in areas directly exposed to sunlight or high temperatures can distort them and subsequently interfere with tape transport. (Fig. 6)*

Fig. 6

- *Store unused tapes in a tape case where there is no danger of them becoming loose or being exposed to dust.*

Cleaning the Head

If the heads become dirty, the sound quality will deteriorate and there will be sound dropouts and other imperfections in performance. In this case, the head must be cleaned.

- When using a cleaning tape, play it once on one side for normal cleaning.
  Excessive use of the cleaning tape will increase head wear.
  Be sure to read the cleaning tape instructions before use.

Listening to a Tape

1. **By inserting the cassette tape into slot [3], power will be turned on and the tape will begin to play.**
   At this time, the tape running direction indicator [43] will light up to your satisfaction.
2. **Adjust volume and tone.**
3. **To eject the cassette tape, press the button [5].**

Changing Program

When button [12] is pressed, the tape switches from side A to side B (or from side B to side A). (If the button is pressed during fast forwarding or rewinding, the current side is played.)

Dolby B NR

To hear a tape recorded using a Dolby NR system, press button ⑧ in Bank [14]. ("DD" [45] appears.)

- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
  "DOLBY" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

Using Fast Forward and Rewind

1. To fast forward tape, press the (▶) side of button [2].
   (Display shows "FF".)
   To rewind tape, press the (◀) side.
   (Display shows "REW".)
2. To release the fast forward or rewind function, press button [12].

Using Music Search
(KEH-P7200RDS, KEH-P7100RDS)

1. To repeat the current selection (A), press the (◀) side of button [2] two consecutive times.
   (Display shows "R-MS".)
   To hear the following piece of music (B) rather than continue the current selection, press the (▶) side of button [2] two consecutive times.
   (Display shows "F-MS".)
   Pressing button [2] three consecutive times makes the normal sequence of playing resume.
2. To release the music search function, press button [12].

The following errors will cause the music search function to operate improperly, even though the unit is not malfunctioning.

- *Unrecorded blank portion between selection is less than 4 seconds → the blank portion cannot be detected by the unit.*
- *Pauses in recorded conversations are longer than 4 seconds → the unit reads these as blanks between selections.*
- *Portions are recorded at very low volume for more than 4 seconds → the unit reads these as blanks between selections.*

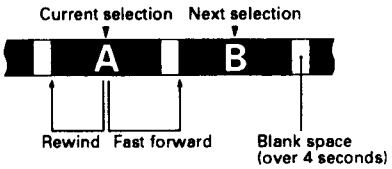


Fig. 7

Auto Tape Selector

When a cassette tape is inserted, the automatic tape selector determines the tape type, and switches between 70 µs and 120 µs equalization. When it is a metal or chrome tape, "MTL" [46] comes on. When it is a normal tape, nothing comes on.

Using the blank skip function
(KEH-P7200RDS, KEH-P7100RDS)

Automatically carriers out fast forward to the start of the next selection when there is a blank area of 12 seconds or more between selections.

1. Press button ⑨ in Bank [14] until "B. SKIP" [42] appears.
2. To release the blank skip function, press button ⑨ in Bank [14] again.

Using the Music Repeat Function
(KEH-P7200RDS, KEH-P7100RDS)

Lets you listen to the same selection repeatedly.

1. Press button ⑫ in Bank [14] when you are listening to the track to be repeated until "RPT" appears on display [44].
2. To cancel the music repeat function, press button ⑫ in Bank [14] again or press button [12].

FLEX (Frequency Level Expander) function
(KEH-P7200RDS, KEH-P7100RDS)

If the high-frequency performance is poor when playing back an old or poorly recorded cassette, you can improve it by pressing button ⑦ in Bank [14]. ("1/f" [41] appears.)

- This function may have little effect on a cassette offering good sound quality, for instance, one recorded from compact disc.

Using the Remote Control
(KEH-P7200RDS, KEH-P7100RDS)

Loading Batteries

1. Remove the battery compartment cover from the remote controller unit.
2. Load 2 batteries, whose type is UM-4, AAA or IEC R03 1.5V, as applicable, that come with the unit into the remote controller unit, ensuring that their polarity (+/–) is correct.
3. Replace the battery compartment cover.

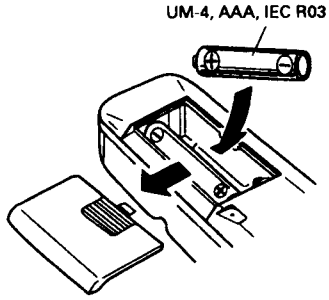


Fig. 8

Precautions When Loading Batteries

Note the following precautions when loading batteries into the remote controller unit to avoid damage due to battery fluid leakage.

- *Always check carefully that you are loading batteries with the (+) and (–) poles facing in the proper directions.*
- *Never mix old and new batteries. Always replace batteries with two new ones.*
- *Some batteries may appear to be identical but have different voltage ratings. Never mix battery types.*
- *Some batteries can be recharged and some cannot. Be sure to carefully read the label for the batteries you use.*
- *To avoid damage to the remote controller caused by battery leakage, remove the batteries from the remote controller if you do not plan to use it for more than one month. If you find that fluid has leaked, thoroughly wipe out the battery compartment and load a set of new batteries.*

Precautions

- *Keep the remote controller unit in an area not exposed to long periods of direct sunlight.*
- *Hold the remote in your hand and operate it as you point it at the head unit.*
- *When you stop suddenly or go around a curve, the remote may fall near your feet and slide under the brake pedal, causing an extremely dangerous situation. Therefore, when not using the remote, always secure it, using the supplied Velcro tape.*
- *Since the transmitter employs and infrared system, it may not operate properly while car stereo unit is exposed to direct sunlight. In such a case, block the sunlight from the sensor and then perform the desired operation.*
- *If the remote controller fails to operate unless it is brouhgt close to the unit, it may indicate that battery power is low. Replace the batteries in the remote controller.*

Parts Identification

Fig. 2

[16] Learn Button
Takes on the same function as the button recorded with the learn function. Refer to the section "Learning Function" for details.

[18] Shift
Each press of button changes the display and the function of button [1] and [19] as follows: Volume → Fader (Balance) → Bass (Treble) →Loudness (ON/OFF) → F. I. E. mode.
Each time you press and hold down this button for 2 seconds or longer, the Source Level Adjuster mode turns ON or OFF.

[21] Volume
Press the (+) side to increase volume and the (–) side to decrease volume.

[22] Tape, Tunner
If this button is pressed to switch the tunner power on. When the cassette tape is inserted, the source changes at each press of this button :
Tape → Radio → OFF

[23] CD, M-CD
Unit goes to CD play. Press again to turn OFF.

- The function only works when this unit is connected to a separately sold Multi-Play CD player (CDX-P1210, CDX-P61 0).

[25] Attenuator
Press to reduce the volume to 1/10 of its current setting (The "ATT" display blinks.). Pressing again returns the volume to its original level.
- This function is available using the remote controller unit only.

Operating Radio

[17] Band
Band changes.

[19] Preset Channel
Press to tune the frequencies assigned to the preset button memory. Pressing the (▲) side tunes in the next high preset button number, while (▼) tunes in the next lower preset button number. The preset number changes at high speed when you hold either side of this button down.

[20] Seek Tuning
Press either the (◄◄) side or the (►►) side. When the (►►) side is pressed, the tuner will automatically receive high frequencies. When the (◄◄) side is pressed, it will automatically receive low frequencies.

[24] BSM
Press this button for 2 seconds or more to switch the BSM function ON and OFF.

Operating Tape

[17] Program
Press this button to change the side of tape from A to B or vice versa.

[20] Fast Forward/Rewind
Press the (►►) side for fast forward and the (◄◄) to rewind the tape. Press this button twice to perform the music search operation, and a third time to return to normal playback.

Operating the CD Player
- This function only works when this unit is connected to a separately sold multi-play CD player (CDX-P1210, CDX-P610).

[17] Multi-play CD player selector
Multi-play CD player changes.
- This function only works when this unit is connected to 2 or more multi-play CD players.

[19] Disc Number Search
Used to specify the number a disc loaded in the magazine. Press the (▲) side to increase the disc number on the display, and the (▼) side to reduce the disc number.

[20] Track Number Search
Press to search for a selection (track number) on the current disc. Press the (►►) side to increase the track number on the display, and the (◄◄) side to reduce the track number. Holding down either side of this button changes the track number at high speed.

Disc Title Input (Entering Titles)
You can enter a title for the disc in the multi-play CD player. This title stored for the disc can be displayed.
Buttons [19] and [20] on the remote controller have the same functions as buttons [1] and [2] on the head unit, respectively.
(See the section "Disc Title Input".)

Learning Function

Fig.1
[13] Learn changeover button

Fig.2
[16] Learn Button

Records one button from the head unit on the remote control's learn button. This can be convenient when a button which is used often is recorded.
1. Holding down button [13] for at least 2 seconds displays "LEARN" for about 8 seconds.
2. Press the button on the head unit that you want to use on the remote control.
3. Press the learn button [16] on the remote controller unit. The head unit button recorded can now be used from the remote control.
- Store the button memory while "LEARN" is displayed. Once that "LEARN" display goes out, nothing can be stored into the button memory.

Using the Clock Display

Parts Identification

Fig.1
[4] ① Hour adjustment
[4] ② Minute adjustment
[4] ③ Clock reset
[8] Clock

Displaying the Time
The clock is displayed when button [8] is pressed. Press button [8] again to switch off the clock display.
- The clock display can be used only when the head unit is in operation.
- When the clock is being displayed, pressing any other button will end the clock display. The clock will be displayed again about 25 seconds after the last button is pressed.

Adjusting the Time

Adjusting Hour
While holding down button [8], press button ① in Bank [4] to adjust the hour setting. Each time button ① in Bank [4] is pressed, the hour advances by one hour.
Holding down button ① in Bank [4] advances the hour at high speed.

Adjusting the Minutes
While holding down button [8], press button ② in Bank [4] to adjust the minute setting. Each time button ② in Bank [4] is pressed, the minute advances by one minute.
Holding down button ② in Bank [4] advances the minute at high speed.
- After the minute is adjusted, the clock will start from 0 second when button [8] is released.

Adjust the clock with the "immediate clock adjustment"
Hold down button [8] and press button ③ in Bank [4]. The time becomes "○○:00".
- If the "minute" indication is 00 to 29, it is discarded, and the clock starts.
(Example: If the time is "10:18", it becomes: "10:00").
- If the "minute" indication is 30 to 59, it is rounded up, and the clock starts.
(Example: If the time is "10:36", it becomes "11:00").

Playing Compact Discs

Precautions When Using the Multi-Play CD Control
- If the IP-BUS extension adapter is used, up to 4 multi play CD players can be connected. When 2 or more CD players are connected, their priorities must be specified for the Multi-play CD players. See the Multi-play CD players instructions and set the address switches correctly.
- Use this unit with optional multi-play CD players (CDX-P1210, CDX-P610).
- If 2 or more multi-play CD players are connected to the unit, you can select the CD player to be played.
Each press of button [12] switches between the CD players and magazine number [47] on the display.

Parts Identification

Fig. 1
[2] Track number search/Fast Forward, Reverse
[4] Disc number search
[10] Display
[11] Source selector
[12] Multi-play CD player select
[13] Function ON/OFF
[14] Disc number search
[14] ⑦ Display selector/Edit
[14] ⑧ Pause/Random play
[14] ⑨ Title list/program clear
[14] ⑩ ITS (Instant Track Selection)/ITS Play
[14] ⑪ Scan/Compression
[14] ⑫ Play mode switching/Manual

Fig. 5
[36] Function indicator
[47] Magazine number
[48] Disc number
[49] COMP
[50] DBE
[51] Magazine repeat mode
[52] Disc repeat mode
[53] Elapsed play time display
[54] Track number
[55] Manual

Using the Multi-Play CD Player

1. Press button [11] to change the display to the multi-play CD player mode and to begin disc play.
Each press of button [11] changes the mode as follows:
Tape → Radio → Multi-play CD player → OFF

2. Use the Disc Number Search function to select a disc.
Select the desired disc by pressing one of the buttons in Bank [4], [14]. The number of the disc selected appears at position [48] on the display.

- If the number at position [48] on the display does not change when you press a button in Bank [4], [14], it means that there is no disc loaded in that tray.

3. Adjust volume and tone.

4. To stop disc play, press button [11].
At another press, the normal play resumes from about where it stopped.

Note:

- When you turn the power on or change the disc to be played, the multi-play CD player may perform a preparatory operation (verifying there is a disc, reading disc information, etc.). "READY" is displayed during this time.
- When the multi-play CD player is not working correctly, an error message appears on the display (Ex: "ERROR80"). Identify the error from the multi-play CD player owner's manual.
- After you press a button in Bank [4], [14], it may take some time before play begins due to the time necessary to load and set the disc in the mechanism.
- If the 12-disc magazine CD player CDX-P1210 is combined with this unit, button [14] acts as the disc number search button. Press button [13] to switch between the function mode and disc number search button.
  When used to search the disc number, turns function OFF.

Track Number Search

The desired track on the disc currently being played can be selected by track (or song) number.
Make sure "MANU" [55] is not displayed on the display. If it is, hold down button ⑫ in Bank [14] more than 2 seconds.
Press the (►) side of button [2] to increase the number at Position [54], or the (◄) side to decrease the number. Holding either side of button [2] down changes the track number at high speed.

Function Mode

If the 12-disc magazine CD player CDX-P1210 is combined with this unit, button [14] acts as the disc number search button. Press button [13] to switch between the function mode and disc number search button.
When the function is turned on, subsequent operations can be performed.

Using Fast Forward and Reverse

1. Hold down button ⑫ in Bank [14] more than 2 seconds. "MANU" [55] appears on the display.
2. Press the (►) side of button [2] for fast forward, and the (◄) side for reverse.

- Sound is output during fast forward and reverse operations.

Repeat

You can select one of the play modes (repeat modes) listed below.

Play mode (repeat mode)	Operation
One-Track Repeat	Play the current track repeatedly. • When you perform track number search or fast forward or rewind, the mode changes to disc repeat mode. • Switching the multi-CD player being played or the disc switches to magazione repeat mode.
Disc Repeat	Play the same disc repeatedly. • Switching the multi-CD player being played or the disc switching to magazine repeart mode.
Magazine Repeat	Play all discs loaded in the magazine in the multi-play CD player repeatedly. All discs in the magazine are played repeatedly from the first disc.
ALL Repeat	The mode changes to this mode when 2 or more multi-play CD players are connected. Multi-play CD players 1 to 4 are played.

Each press of button ⑫ in Bank [14] causes the mode to change as follows:
One-Track Repeat ("RPT" appears on the display [53]) → Disc Repeat ("(DISC)" [52] appears) → Magazine Repeat ("(M-CD)" [51] appears) → ALL Repeat

Random Play

The microcomputer of the multi-play CD player can play tracks on discs in a random order. Random play is performed according to the current play mode (repeat mode) as follows:

Play mode (repeat mode)	Tracks to be played at ramdom
One-Track Repeat	All tracks on the disc being played. • The play mode changes to disc repeat mode.
Disc Repeat	All tracks on the disc being played.
Magazine Repeat	All tracks on the discs in the magazine being played.
ALL Repeat*	All tracks on all discs in multi-play CD players 1 to 4.

* When 2 or more multi-play CD players are connected.

1. Select the desired random play mode (repeat mode).
2. Hold down button ⑧ in Bank [14] for more than 2 seconds. ("RDM" appears on the display [53].) To cancel random play, hold down button ⑧ in Bank [14] for more than 2 seconds again. ("RDM" disappears.)

- Since selections are played in random order, the same selection may be played twice in succession.

Using Scan

The first parts of each track are played in succession for about 10 seconds. This function is useful to search for the track or disc you want to listen to. Scan is performed according to the current play mode (repeat mode) as follows:

Play mode (repeat mode)	Tracks to be scanned and played
One-Track Repeat	All tracks on the disc being played. • The play mode changes to disc repeat mode.
Disc Repeat	All tracks on the disc being played.
Magazine Repeat	The first tracks of all the discs in the magazine being played.
ALL Repeat*	First tracks of all discs loaded in multi-play CD players 1 to 4.

* When 2 or more multi-play CD players are connected.

1. Select the desired random play mode (repeat mode).
2. Press button ⑪ in Bank [14]. ("SCAN" appears on the display [53].) The first parts of all tracks are played in succession for about 10 seconds.
3. When you hear the track you want, press button ⑪ in Bank [14] again to cancel Scan. ("SCAN" disappears.) The track (disc) being played then plays to the end.

- The previous function automatically resumes when a piece of music with which Scan began returns.

ITS (Instant Track Selection)

This function lets you program and play the tracks you want. You can listen to just your favorite tracks.

- The ADPS function* of the multi-play CD player lets you program up to 100 discs. (Up to 100 discs can be programmed including disc title inputs.)
  * ADPS: Automatic Disc Program Selection
- Up to 99 tracks can be programmed for a single disc.
- When the number of discs exceeds 100, discs not being played (Information not being renewed) in memory is overwritten by the newest.
- Tracks are programmed for each disc. Programmed tracks are not erased after the disc is changed.

Programming

1. Play the track you want to program.
2. Press button ⑩ in Bank [14] to program the track. ("ITS" appears on the display [53] for 2 seconds.)

- Program tracks while ITS play is not in progress. It is possible during scan play or random play.

ITS Play

Tracks stored only in memory are played in order. Tracks are played according to ITS play mode (repeat mode) as follows:

Play mode (repeat mode)	Tracks to be played by ITS
One-Track Repeat	Programmed tracks on the disc being played. • The play mode changes to disc repeat mode.
Disc Repeat	Programmed tracks on the disc being played.
Magazine Repeat	Programmed track on the discs in the magazine being played. • If the disc being played contains no programmed tracks, the next disc containing programmed tracks is played.
ALL Repeat*	Programmed tracks on all discs in all magazines in multi-play CD players 1 to 4. • If the disc (multi-play CD) being played contains no programmed tracks, the next disc (multi-play CD) containing programmed tracks is played.

* When 2 or more multi-play CD players are connected.

1.Select the desired ITS play mode (repeat mode).
2.Hold down button ⑩ in Bank [14] for more than 2 seconds. ("ITS.P" appears on the display [53].) To cancel ITS play, hold down button ⑩ in Bank [14] again. ("ITS.P" disappears.)
- When you play a disc that has no tracks programmed, "EMPTY" will appear on the display [53] for about 2 seconds, indicating that ITS play is not possible.
- You can perform scan play or random play during ITS play. In this case, scan play or random play applies to all the tracks stored in memory. (If the play mode is the magazine repeat mode or all repeat mode, scan play applies to all the tracks of the discs in the magazine stored in memory.)
- During ITS play, multi-play CD players containing discs with programmed tracks are switched, and disc and track number search is performed on programmed tracks.

Erasing the ITS Program
You can erase one or all selections of the program for the disc being played by ITS.

To erase a single selection:
1.Start ITS play.
2.Play the track you wish to erase by using disc number search or track number search.
3.Hold down button ⑨ in Bank [14] for more than 2 seconds.

To erase the disc program:
1.Start normal play.
2.Play the disc you wish to erase by using disc number search.
3.Hold down button ⑨ in Bank [14] for more than 2 seconds to erase the program. ("CLEAR" appears on the display [53] for about 2 seconds.)

Pausing
1.Press button ⑧ in Bank [14] to pause during disc playback ("PAUSE" appears on display [53]).
2.Press button ⑧ in Bank [14] again to release pause.
- You can select a track using the track number search during pause. ("PAUSE" is off while a track is being searched.) When the track search ends, the found track is paused at its beginning.

Disc Title Input
You can enter a title for the disc in the multi-play CD player. The title stored for the disc can be displayed.
- The ADPS function* of the multi-play CD player lets you enter titles for up to 100 discs. (Up to 100 discs, including ITS, can be programmed.)
  *ADPS: Automatic Disc Program Selection
- A disc title can consist of up to 8 characters for a single disc.
- When the number of discs exceeds 100, discs not being played (information not being renewed) in memory is overwritten by the newest.
- One title is stored for each disc. The title stored for a disc is not erased after the disc is changed.

Entering Titles
1.Select the disc for which you want to enter a title.
2.Hold down button ⑦ in Bank [14] for more than 2 seconds to select title input mode.
3.Press the (◄) or (►) side of button [2] to select the input position. The input position moves continuously when you hold down either side of the button.

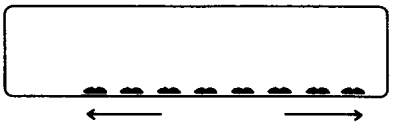


Fig. 9

4.Select characters using the (+) or (–) side of button [1]. When you hold down either side of the button, the character changes continuously. Each press of the (+) side changes the character from "A → B → C...", while each press of the (–) side changes the character from "C → B → A". To enter a space, press the space sign (_).
5.Enter all characters by repeating steps 3 and 4.
Press button ⑦ in Bank [14] to store them in memory.
The title will appear on the display.

Disc Title List
You can list all discs loaded in the magazine being played. This function is convenient for checking discs in the magazine being played.
Each press of button ⑨ in Bank [14] displays the titles of the discs in magazine being played in ascending order of disc number.
The disc title is displayed for about 8 seconds, then the normal operation display returns.
- *Nothing is displayed for discs having no titles.*
- *Trays with no discs are skipped.*

Select the disc to be played from the disc list display.
1.Press button ⑨ in Bank [14] to display the disc title.
2.When the title of the disc you want to listen to is displayed, press button ⑦ in Bank [14]. That disc is played.

Display Switching
Each press of button ⑦ in Bank [14] switches the display [53] between the elapsed play time and disc title.
When you press button [12] while the disc title is being displayed, the normal operation display will appear for 8 seconds.

CD sound quality adjustment function
If you connect a Multi-play CD player with COMP (Compression) and D.B.E. (Dynamic Bass Emphasis) functions to this unit, you can use these functions with this unit. (If you connect a Multi-play CD player that does not feature these functions, even if you try to switch to these functions, "NO COMP" is displayed, indicating that switching is not possible.)

COMP (Compression) function
This function suppresses loud sounds while boosting quiet sounds to reduce the difference between the 2.
Use this function if there is distortion when you raise the volume.
When the COMP function is ON, "COMP" [49] lights in the display.

D.B.E. (Dynamic Bass Emphasis) function
When listening in a car, bass sound may be insufficient. This function boosts bass.
When the D.B.E. function is ON, "DBE" [50] lights in the display.

COMP and D.B.E. switching
You can switch between 2 COMP and D.B.E. levels.
Level switching of both functions at the same time is not possible.
1.Press button ⑪ in Bank [14] for 2 or more seconds to select the switching mode.
2.Each time you press button ⑪ in Bank [14], the mode changes as follows.
COMP OFF → COMP 1 → COMP 2 → COMP OFF → DBE 1 → DBE 2 → COMP OFF
- With both COMP and D.B.E., the second mode is more effective.

● Connection Diagram

Fig. 10

Fig. 11

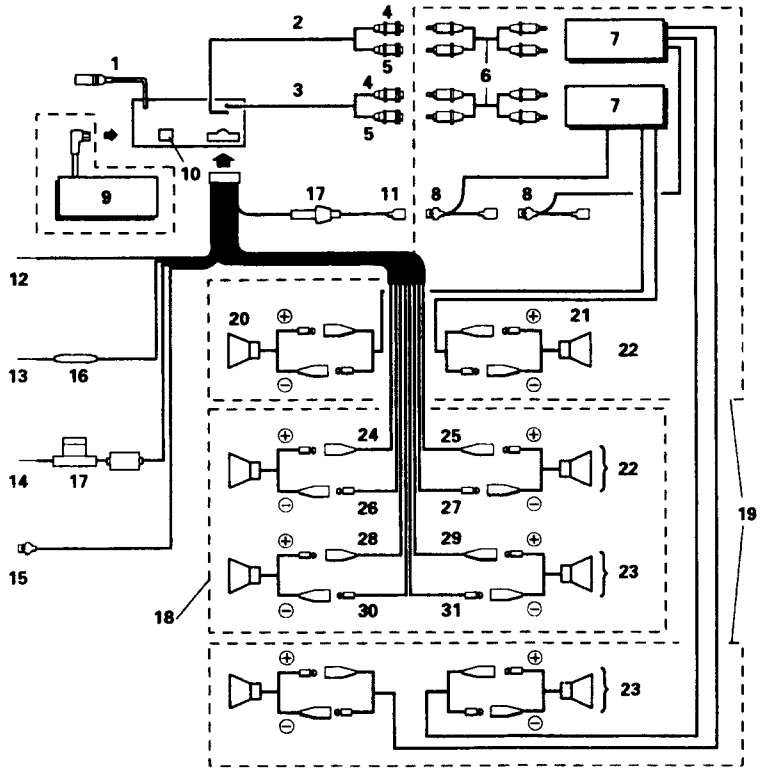


Fig. 12

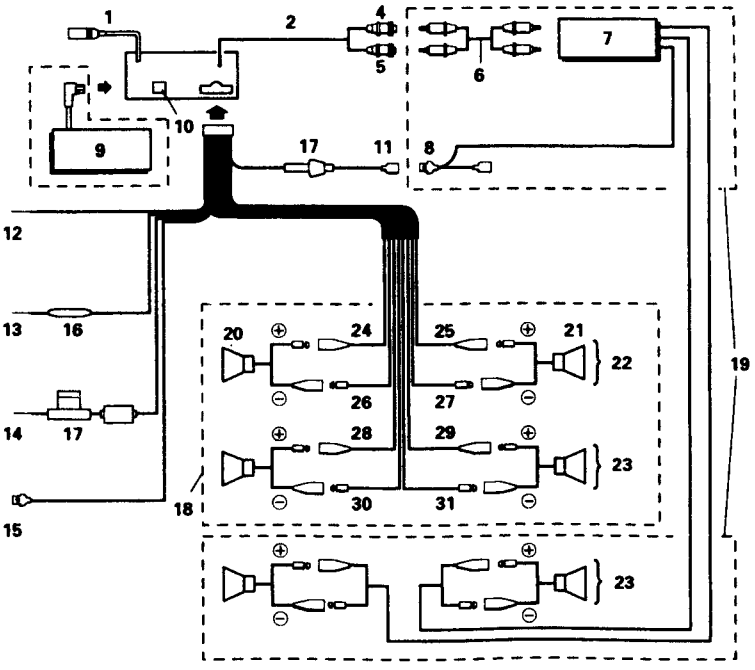


Fig. 13

Connecting the Units

Note:

- *This unit is for vehicles with a 12-volt battery and negative grounding. Before installing it in a recreational vehicle, truck, or bus, check the battery voltage.*
- *To avoid shorts in the electrical system, be sure to disconnect the battery ⊖ cable before beginning installation.*
- *Refer to the owner's manual for details on connecting the various cords of the power amp and other units, then make connections correctly.*
- *Secure the wiring with cable clamps or adhesive tape. To protect the wiring, wrap adhesive tape around them where they lie against metal parts.*
- *Route and secure all wiring so it cannot touch any moving parts, such as the gear shift, handbrake, and seat rails. Do not route wiring in places that get hot, such as near the heater outlet. If the insulation of the wiring melts or gets torn, there is a danger of the wiring short-circuiting to the vehicle body.*
- *Don't pass the orange lead through a hole into the engine compartment to connect to the battery. This will damage the lead insulation and cause a very dangerous short.*
- *Do not shorten any leads. If you do, the protection circuit may fail to work when it should.*
- *Never feed power to other equipment by cutting the insulation of the power supply lead of the unit and tapping into the lead. The current capacity of the lead will be exceeded, causing over heating.*
- *When replacing fuses, be sure to use only fuses of the rating prescribed on the fuse holder.*
- *Since a unique BPTL circuit is employed, never wire so the speaker leads are directly grounded or the left and right speaker ⊖ leads are common.*
- *Speakers connected to this unit must be high-power types possessing minimum rating of 35 W and impedance of 4 to 8 ohms. Connecting speakers with output and/or impedance values other than those noted here can damage the speakers.*
- *When an external power amp is being used with this system, be sure not to connect the blue lead to the amp's power terminal. Likewise, do not connect the blue lead to the power terminal of the auto-antenna. Such connection could cause excessive current drain and malfunctions.*
- *To prevent incorrect connection, the input side of the IP-BUS connector is blue, and the output side is black. Connect the connectors of the same colors correctly.*
- *When the unit is mounted in a vehicle whose ignition switch does not have the ACC (accessory) position as shown in Fig. 6, be sure to connect the red lead of the unit to the terminal controlled by the ignition switch ON/OFF position. If you do not, the vehicle battery may go flat when you leave your vehicle for several hours.*

ACC position (Fig. 10)
No ACC position (Fig. 11)

Connection Diagram

KEH-P7200RDS, KEH-P7100RDS (Fig. 12)
KEH-P6200RDS, KEH-P6100RDS (Fig. 13)

1. Antenna jack
2. Rear out
3. Front out
4. White
5. Red
6. Connecting cords with RCA pin plugs (sold separetely)
7. Power amp (sold separetely)
8. Blue
9. Multi-play CD player etc. (sold separetely)
10. IP-BUS input (blue)
11. Blue
    To system control terminal of the power amp or Auto-antenna relay control terminal (Max. 300 mA 12 V DC).
12. Black (ground)
    To vehicle (metal) body.
13. Red
    To electric terminal controlled by ignition switch (12 V DC) ON/OFF.
14. Orange
    To terminal always supplied with power regardless of ignition switch position
15. Yellow/black
    Cellular mute
    If you use a cellular telephone, connect it via the Audio Mute lead on the cellular telephone. If not, keep the Audio Mute lead free of any connections.
16. Fuse resistor
17. Fuse holder
18. With a 2 speaker system, connect to the 2 speakers in the front or the rear.
19. Use this for connections when you have the separately available amplifier.
20. Left speaker
21. Right speaker
22. Front
23. Rear
24. Green
25. Gray
26. Green/black
27. Gray/black
28. Green/red
29. Gray/red
30. Black/green
31. Black/gray

3. DISASSEMBLY

● **Removing the Case (not shown)**

1.Remove the case.

● **Removing the Cassette Mechanism Module (Fig.14)**

1.Remove the four screws.
2.Disconnect the connector of deck unit.
3.Remove the cassette mechanism module.

● **Removing the Grille Panel Assy (Fig.14)**

1.Disconnect the two stoppers indicated by arrows.
2.Remove the grille panel assy.

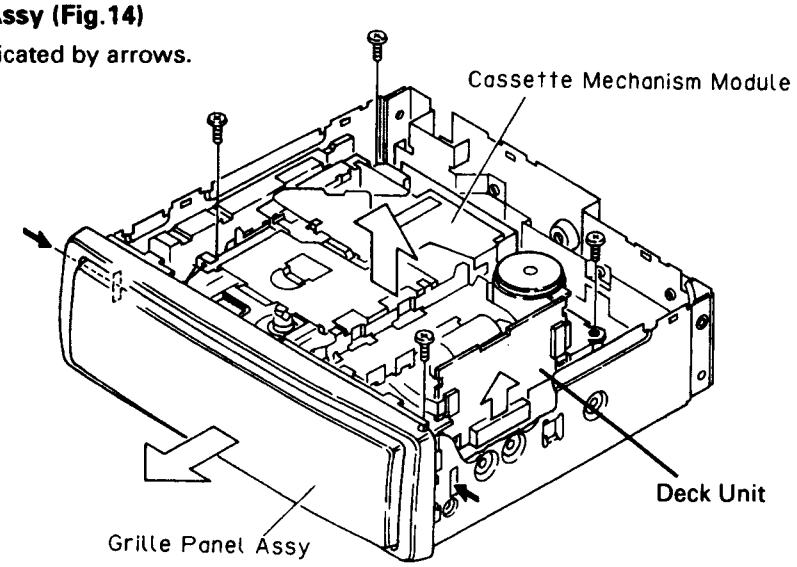


Fig.14

● **Removing the Chassis Unit (Fig.15)**

1.Remove two screws A and three screws B.
2.Unbend the tabs at two locations indicated by arrows until straight.
3.Remove the chassis unit.

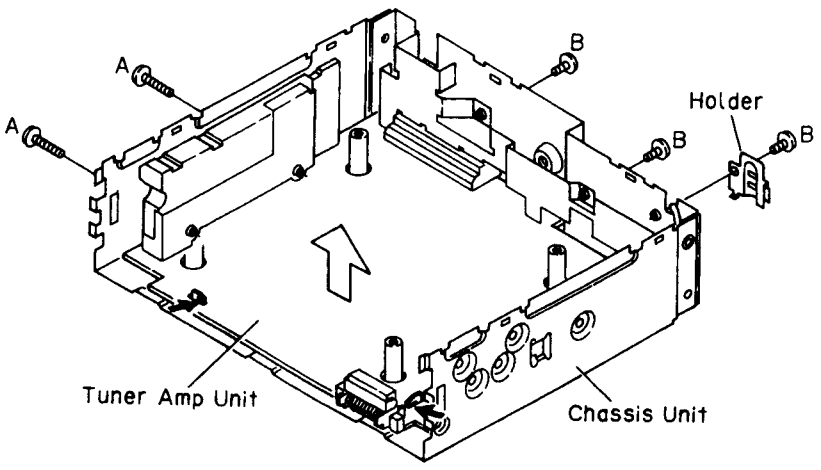


Fig.15

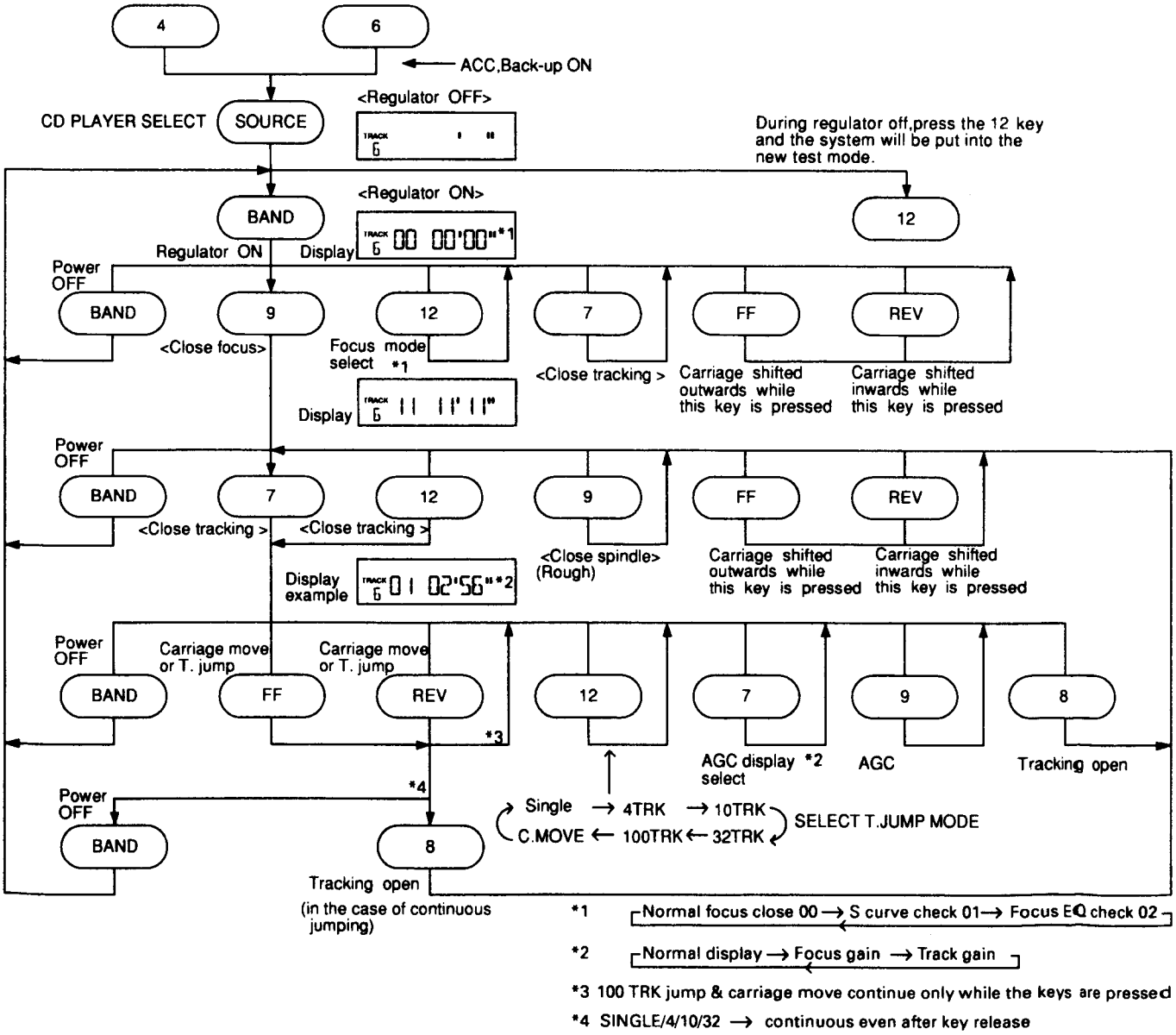
4. ADJUSTMENT

4.1 TEST MODE

Test mode is mainly used adjustment of IP BUS type CD multi players.(Such as CDX-P610)

- Switching to test mode
  While pressing the 4, 6 keys together, switch the back up and ACC ON.
- Canceling test mode
  Switch the back up and ACC off.
- SINGLE/10TRK/32TRK will continue to operate even after the key is released.Tracking closed the moment C-MOVE is released.
- JUMP MODE resets to SINGLE as soon as power is switched off.

● Flow Chart



● Error Numbers And New Test Mode

● Indicating An Error Number

If the CD should fail to operate in CD multi player or if an error has taken place during the operation and resulted in an error, the player will enter into the error mode. And the cause of such error is numerically indicated.
This is armed at assisting an analysis or repair.

(1) Basic Means of Display

·With ERROR indicated in "MODE" on IP-BUS Display date, an error code is transmitted by the use of MIN and SEC. Identical date are transmitted with MIN and SEC.

·Examples of Display ERROR-XX

(2) Error Codes

Error Code	Classification	Description	Cause/Detail
10	ELECTRIC	Carriage home failure	Carriage doesn't move to or from the innermost position →Home switch failed and/or carriage immobile
11	ELECTRIC	Focus failure	Focus failed →Defects, disc upside-down, severe vibration
12	ELECTRIC	SETUP failure Subcode failure	Spindle failed to lock or subcode unreadable →Spindle defective, defect, severe vibration
14	ELECTRIC	Mirror failure	Unrecorded CD-R The disc is upside-down, defects, vibration
17	ELECTRIC	Set up failure	AGC protect failed →Defects, disc upside-down, severe vibration
30	ELECTRIC	Search time out	Failed to reach target address →Carriage/tracking defective and/or defects
A0	SYSTEM	Power failure	Power overvoltage or short circuit detected →Switching transistor defective and/or power abnormal
50	MECHANISM	An error upon ejection	MAG switch release time has time out Elevation time out when eject
60	MECHANISM	An error while putting in and out the tray	Tray in / out time has time out Tray is caught when put in
70	MECHANISM	An error upon elevation	Elevation time has time out
80	MECHANISM	An error with an empty magazine inserted	No disc is available

* Setup means a series of operations after focusing up to sound output.

● New Test Mode(aging operation and setup analysis)

The single CD player plays in normal mode. After being set up, it will display FOK (focus), LOCK (spindle), subcode, sound skip, protection against a mechanical error or the like, occurrence of an error, cause and time of an expiry, if any, (and disc number)
During the setup, the CD software operation status (internal RAM and C-point)is displayed.

(1) How to enter NEW TEST Mode

See the test mode flow chart Page 15.

(2) Relations of keys between TEST and NEW TEST Modes

Keys	Test Mode		New Test Mode	
	Regulator OFF	Regulator ON	PLAY in progress	Error Occurred, Protection Activated
BAND	Regulator ON	Regulator OFF	—	Time of occurrence / cause of error select
FF	—	FWD-Kick	TRACK UP / FF	—
REV	—	REV-Kick	TRACK DOWN /REV	—
7	—	Tracking close	RPT	—
8	—	Tracking open	RANDOM	—
9	—	Focus close	ITS	—
12	To New Test Mode	Focus Mode Select	PAUSE	—

Operations, such as EJECT, CD ON/OFF, etc. are performed normally

(3) Error Cause (Error Number) Code

Error Code	Classification	Mode	Description	Cause	Detail
40	ELECTRIC	PLAY	FOK=L 100ms	Put out of focus	Scratch, Stain, Vibration, Servo defect, etc...
41	ELECTRIC	PLAY	LOCK=L 150ms	Spindle unlock	
42	ELECTRIC	PLAY	Subcode unacceptable 500ms	Failed to read subcode	
43	ELECTRIC	PLAY	Sound skipped	Last address memory operated	

(4) Indicating an Operation Status During Setup

Status No.	Description	Protection operation
01	Carriage home mode started	None
02	Carriage moving inwards	10-second time out, Home switch failed
03	Carriage moving outwards	10-second time out, Home switch failed
05	Carriage moving outwards	None
11	Setup started	None
12	Spindle turn/Focus search started	None
13	Waiting for focus closure (XSI=L)	Failure to close focus
10,14	Waiting for focus closure (FOK=H)	Failure to close focus
15, 16, 17	Focus closed, Tracking open	Focus disrupted
18	During focus AGC Subcode waiting	Focus disrupted
19	During tracking AGC	Disrupted focus
20	Waiting for MIRR, LOCK or subcode read Carriage closed, SPINDLE=ADAPTIVE	Focus disrupted, MIRR NG, Failure to lock, Failed to read subcode

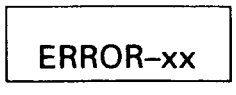
(5) Example of Display.

·SET UP in progress

·Operation (PLAY, SEARCH, etc.) in progress perfectly identical with that in the normal mode.

·Protection/Error upon occurrence

(a) Error number indicated



Select the display with the BAND key.

(b) Track number and absolute time indicated

● Connection Diagram

NOTE:

Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.

Z: Output impedance of SSG.

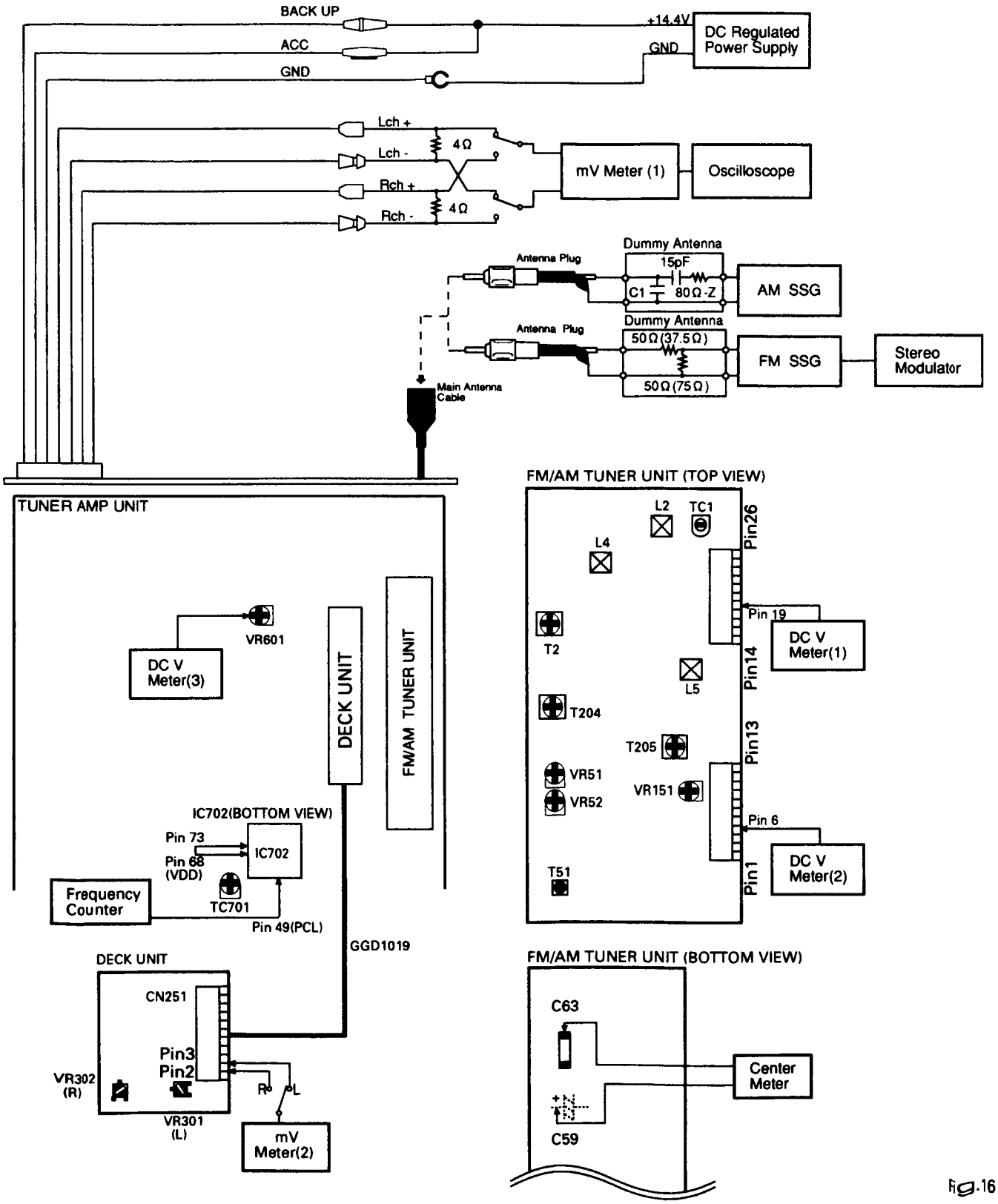


fig.16

AM ADJUSTMENT

	No.	AM SSG(400Hz,30%) Frequency(kHz)	AM SSG(400Hz,30%) Level(dBμV)	Displayed Frequency(kHz)	Adjustment Point	Adjustment Method (Switch Position)
IF	1	999	20	999	T204,T205	mV Meter(1) : Maximum

FM ADJUSTMENT

Modulation M:MONO MOD., 400Hz 100%(75kHz Dev.)
S:STEREO MOD., 1kHz, L or R=100%(67.5kHz+7.5kHz Dev.)

NOTE:Before proceeding to further adjustments after switching power ON, let the tuner run for ten minutes to allow the circuits to stabilize.

FM ADJUSTMENT

	No.	FM SSG Frequency(MHz)	FM SSG Level(dBf)	Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
TUN Volt	1	108.0 M	65	108.0	L5	DC V Meter(1) : 6.5V±0.1V
IF	1	98.1 M	65	98.1	T51	Center Meter : 0
TRIMMER	1	•••••	•••••	•••••	TC1	Initial setting(before measurement) of trimmer should be that of Fig.15.
ANT,RF	1	98.1 M	5	98.1	L2,L4	mV Meter(1) : Maximum
IMAGE	1	129.3 M	70—90	107.9	TC1	mV Meter(1) : Minimum
IFT	1	98.1 M	10	98.1	T2	mV Meter(1) : Maximum (STEREO MODE)
Soft Mute	1	98.1 M	65	98.1	•••••	mV Meter(1) : A (STEREO MODE)
	2	98.1 M	15	98.1	VR52	mV Meter(1) : A-3dB
ARC	1	98.1 S	40	98.1	VR151	mV Meter(1) : Separation 5dB
SD	1	98.1 S	22	98.1	VR51	DC V Meter(2) : Approx. 5V

RDS SL ADJUSTMENT

No.	FM SSG Frequency(MHz)	FM SSG Level(dBf)	Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
1	106.1 M	52	106.1	VR601	DC V Meter(3) : 2.25V±0.05V

DOLBY B NR ADJUSTMENT(KEH-P7200RDS/EW,P7100RDS/EW,P6200RDS/EW,P6100RDS/EW)

No.	Test Tape	Adjustment Point	Adjustment Method (Switch Position)
1	NCT-150 (400Hz,200nwb/m)	VR301(Lch),VR302(Rch)	mV Meter(2) : -6.0dBs±1.0dB (DOLBY NR Switch : OFF)

CLOCK ADJUSTMENT(KEH-P7200RDS/EW,P7100RDS/EW)

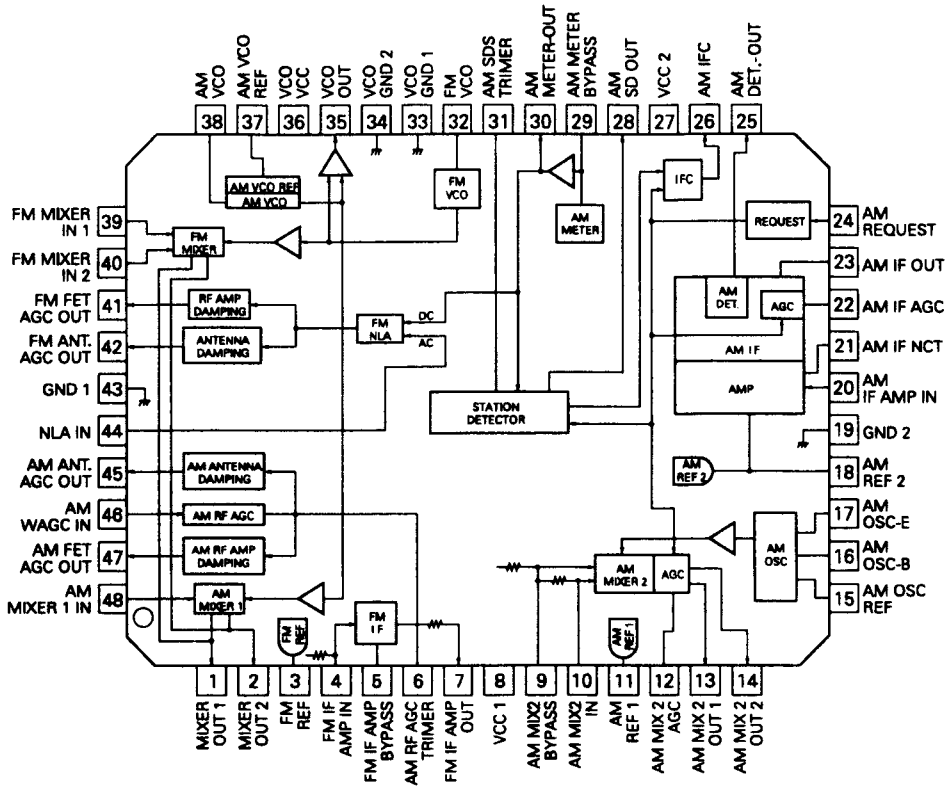
No.	Adjustment Point	Adjustment Method Point
1	•••••	Pin49 of IC702 connect to pin68(VDD)
2	TC701	Frequency Counter : 1.048576MHz±2Hz

CLOCK (KEH-P6200RDS/EW,P6100RDS/EW,P25RDS/EW,P15RDS/EW)

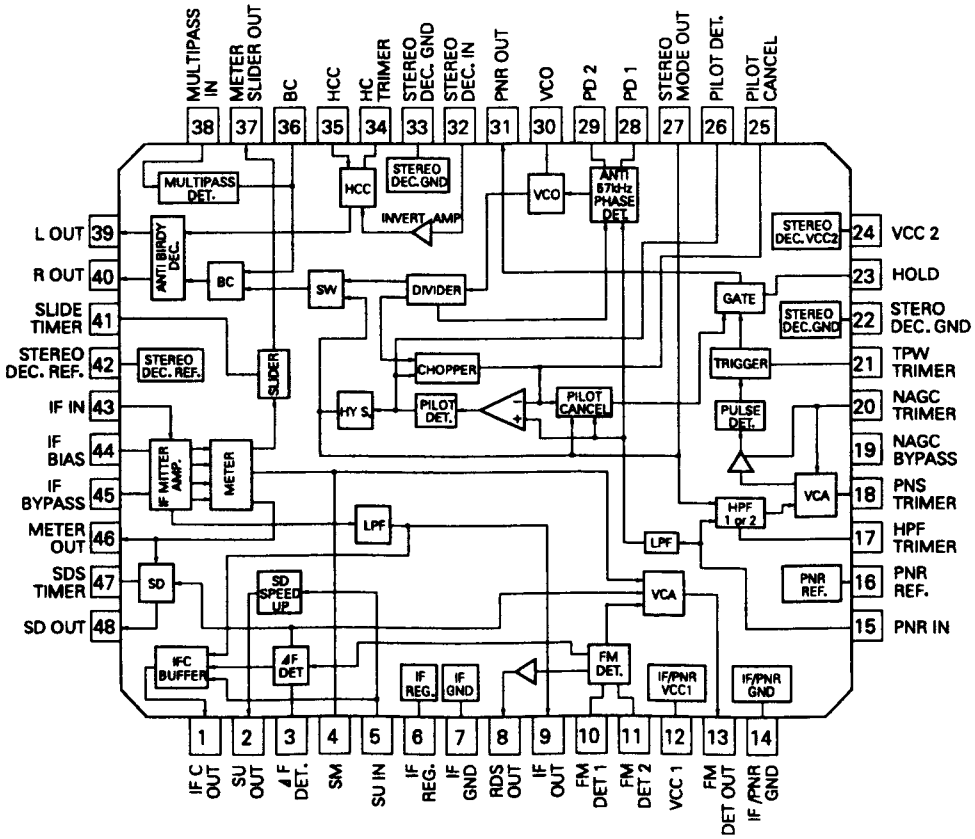
Pin49 of IC702 connect to pin68(VDD) ► Frequency Counter : 1.048576MHz±24Hz

● ICs

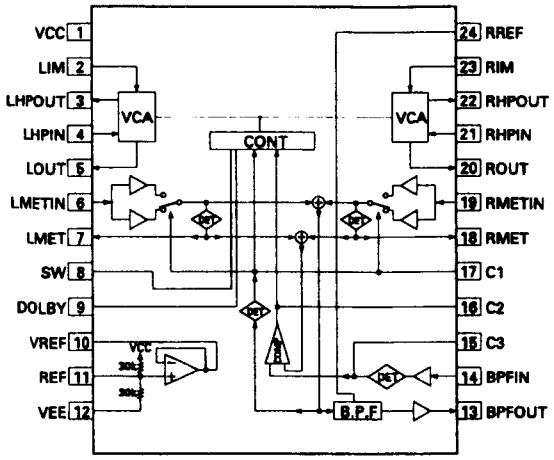
PA2021B



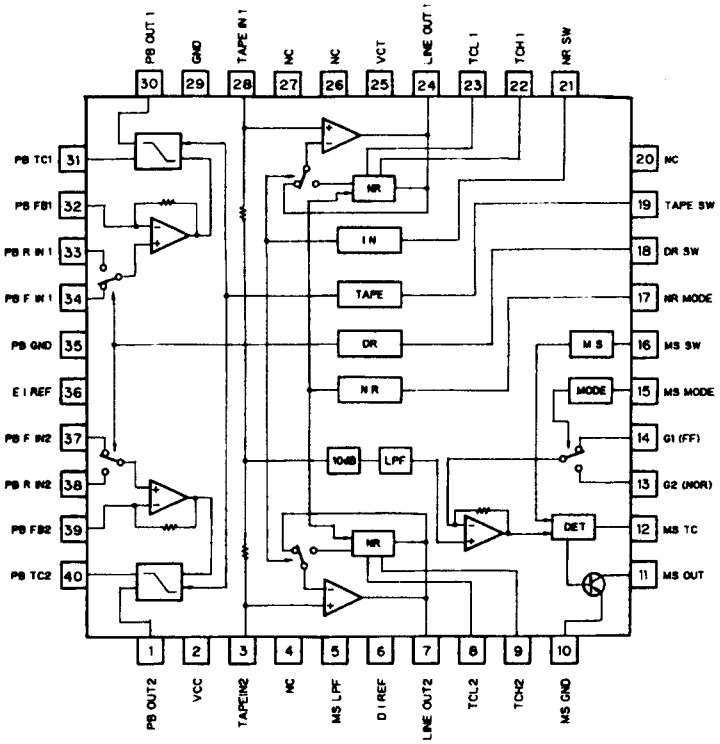
PA2022B



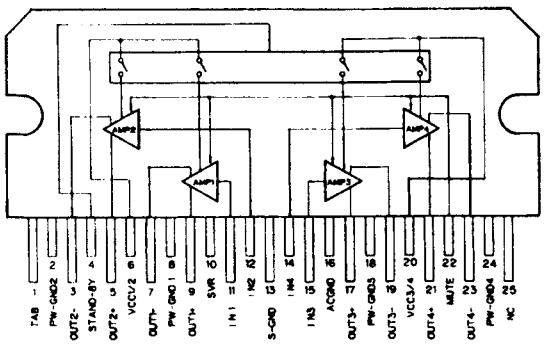
PA0059AM



CXA1911Q-01



PAL003AK



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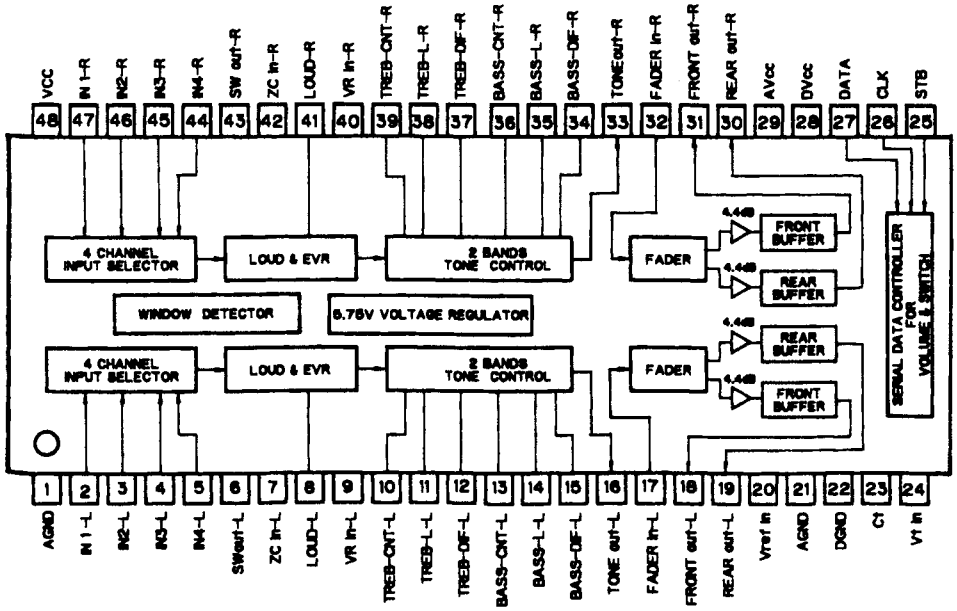


● **Pin Functions(PD4544A)**

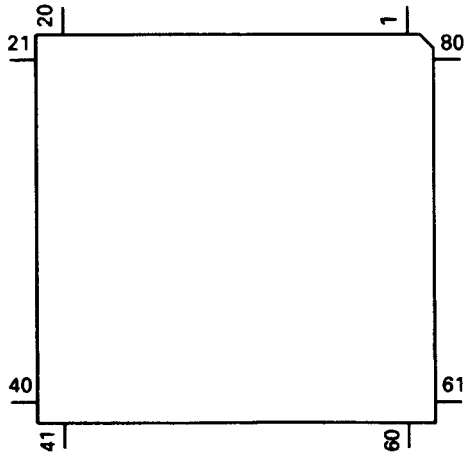
Pin No.	Pin Name	I/O	I/O Format	Function and Operation
1	ERROR	O	C	Disapprove of error correction output
2	CORR	O	C	Error output
3	$\overline{\text{DRST}}$	O	C	Reset output
4	AVSS			GND
5	RECIVE	O	C	Reception output
6	FZOUT	O	C	Fuzzy control output
7	AVREF1			Power supply
8	KYDT	I	C	Key data input
9	DPDT	O	C	Display data output
10	SWVDD	O	C	Grille power supply control output
11	RDSDT	I	C	FROM data input
12	$\overline{\text{RDSLK}}$	I	C	RDS LK signal input
13	$\overline{\text{SK}}$	I	C	SK signal input
14	$\overline{\text{DK}}$	I	C	DK signal input
15	SD	I	C	SD input
16	PDI/TSI	O	C	Data output for PLL IC
17	PDO/TSO	O	C	Data output for PLL IC
18	PCK/TSCK	O	C	Clock output for PLL IC
19	PCE	O	C	Chip select output for PLL IC
20	MONO	O	C	Forced mono output
21	STBY	O	C	Cassette mechanism stand-by output
22	CM	O	C	Cassette mechanism capstan motor control output
23	SC1	O	C	Cassette mechanism sub motor control output
24	SC2	O	C	Cassette mechanism sub motor control output
25	NR	O	C	Cassette mechanism noise reduction output
26	DOLBY$\overline{\text{B/C}}$	O	C	Dolby B/C output
27	$\overline{\text{POS}}$	I	C	Cassette mechanism position sense input
28	$\overline{\text{LOADSW}}$	I	C	Cassette mechanism load switch input
29	NES	I	C	Cassette mechanism forward end sense input
30	RES	I	C	Cassette mechanism reverse end sense input
31	$\overline{\text{MTLSW}}$	I	C	Cassette mechanism metal sense input
32	PLAY	O	C	Cassette mechanism MS gain select output
33	VSS			GND
34	$\overline{\text{N/R}}$	O	C	Cassette mechanism tape direction output
35	MSIN	I	C	Cassette mechanism MS sense input
36	MODEL00	I	N	Model select input
37	MODEL01	I	N	Model select input
38	MODEL10	I	N	Model select input
39	MODEL11	I	N	Model select input
40	FLEX	O	C	FLEX output
41	FDOLBY	O	C	Dolby output for FLEX
42–44	NC			Not used
45	PEE	O	C	Beep tone output
46	MUTE	O	C	Mute output
47	AM		C	AM power control
48	FM		C	FM power control
49	PCL	O	C	Clock adjustment output
50	TUNPW		C	Tuner power control
51	$\overline{\text{DSENS}}$	I	C	Grille detach sense
52	LPFSW	O	C	Output for FIE
53	ILMPW	O	C	Illumination power supply control output
54	SYSPW	O	C	System power supply control output
55	ASENSB	O	C	Acc sense output
56	TX	O	C	IP BUS data output
57	RX	I	C	IP BUS data input
58,59	NC			Not used
60	$\overline{\text{RESET}}$	I		Reset input
61	TELIN	I	C	TEL mute signal input

Pin No.	Pin Name	I/O	I/O Format	Function and Operation
62	RCK	I	C	Clock input
63	$\overline{\text{ASENS}}$	I	C	ACC power sense input
64	$\overline{\text{BSENS}}$	I	C	Back up power sense input
65	VDT	O	C	Data output for electronic volume
66	VCK	O	C	Clock output for electronic volume
67	VST	O	C	Strobe pulse output for electronic volume
68	VDD			Power supply
69	X1			Crystal oscillator connection pin
70	X2			Crystal oscillator connection pin
71	IC			GND
72	XT2			Not used
73	TESTIN	I		Test program mode input
74	AVDD			Positive power supply terminal for analog circuit
75	AVREF0			Not used
76	FMSL	I	C	FM signal level input
77	AMSL	I	C	AM signal level input
78	SLIN	I	C	SL input
79	FZIN	I	C	Fuzzy control input
80	NC			Not used

I/O Format	Meaning
C	C MOS
N	N channel open drain

IC's marked by are MOS type.*
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

*PD4544A



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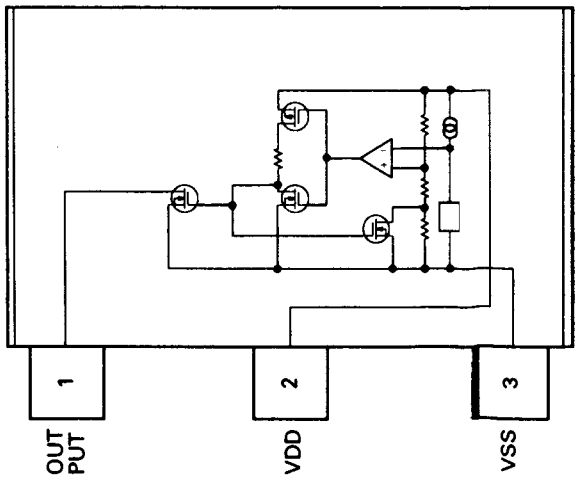
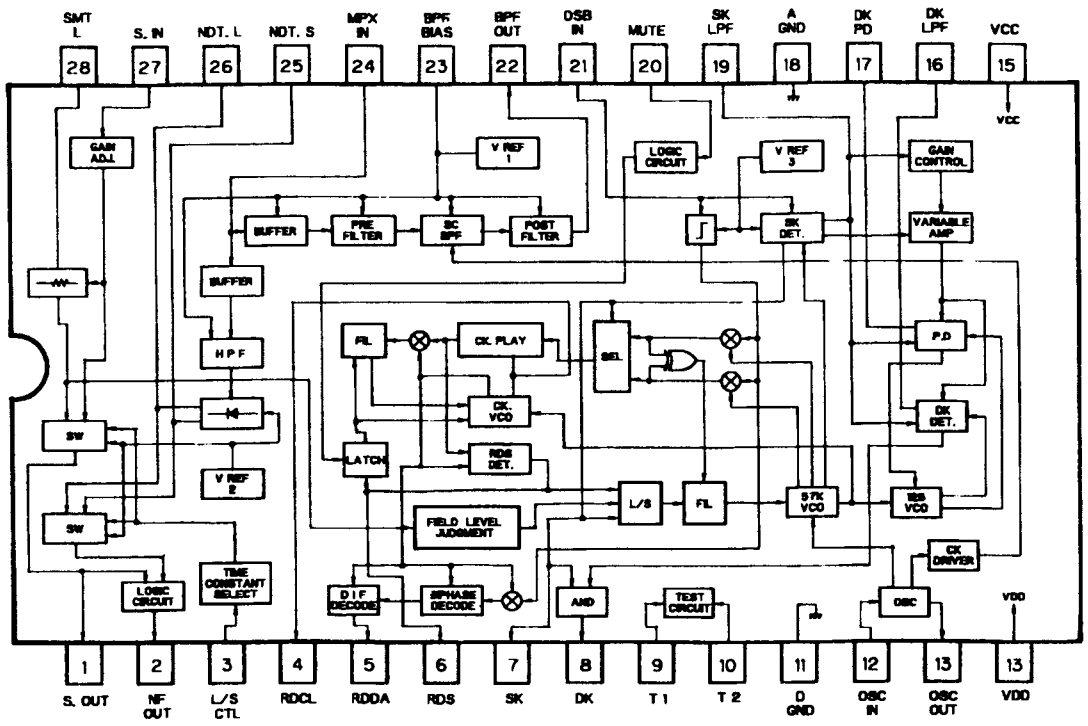
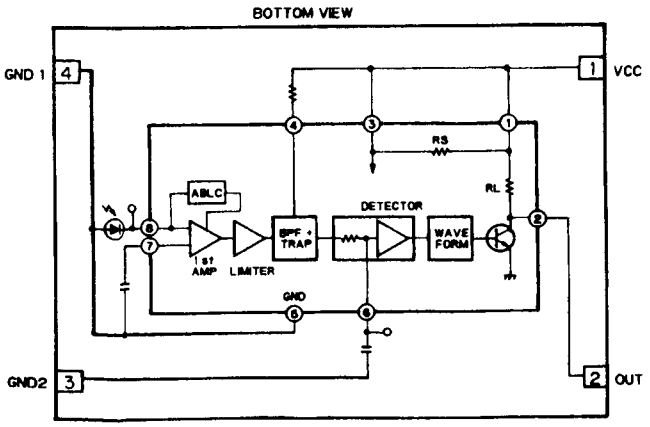


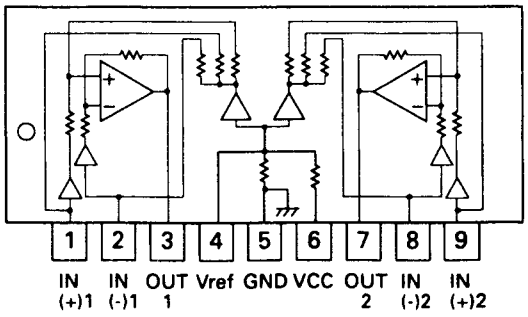
PMR001BK



RS-30K



TA2050SK



● LCD(CAW1266) (KEH-P7200RDS,P6200RDS,P25RDS)
● LCD(CAW1265) (KEH-P7100RDS,P6100RDS,P15RDS)

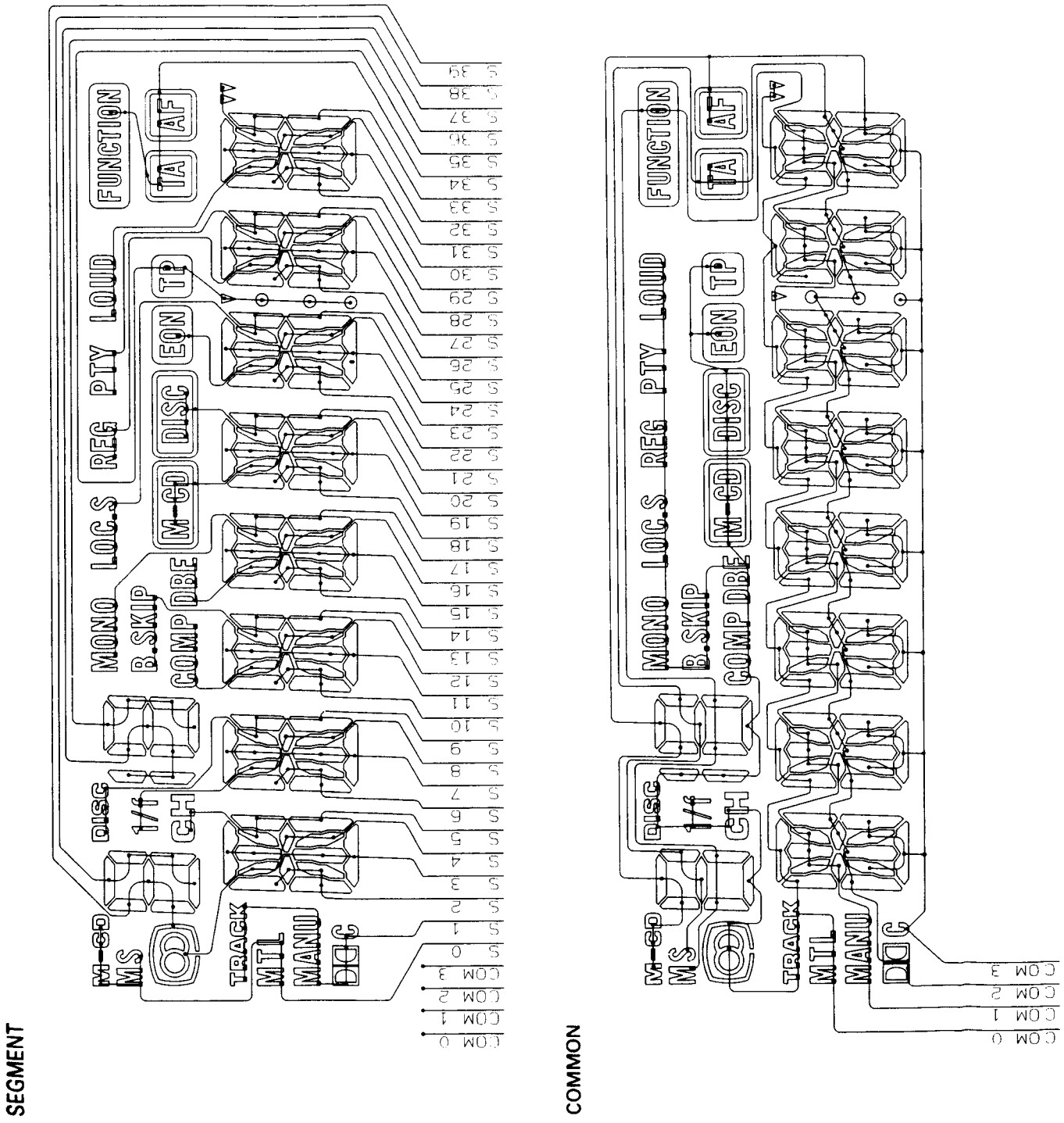


Fig. 17

5. ELECTRICAL PARTS LIST

NOTES:

- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *The part numbers shown below indicate chip components.*

Chip Resistor

RS1/○S○○○J,RS1/○○S○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

Unit Number : CWM3980(KEH-P7200RDS/EW,KEH-P7100RDS/EW)
Unit Name : Tuner Amp Unit

MISCELLANEOUS

=====Circuit Symbol & No.	Part Name=====	Part No.
IC 351		PA0059AM
IC 451		SN761025DL
IC 501		LC72140MK
IC 551		PAL003AK
IC 601		PMR001BK
IC 701		S-80734ANK
IC 702		PD4544A
IC 703		PA0051AMK
IC 704		TA2050SK
Q 351 703 709 770 777		2SA1048
Q 352 504 506 507 601 602 701 761 762		2SC2458
Q 401 402 403 404		DTC314TS
Q 405		DTA124ES
Q 406		DTA114ES
Q 407 408		DTC114TS
Q 501		2SC2498
Q 503 505		2SK330
Q 508 552 702 714		DTC124ES
Q 710 769 771 773 779		DTC114ES
Q 712		2SB1243
Q 763		2SD1859
Q 767 768 772		2SA1150
Q 778		2SD2395
D 351 352 353 701 702 704 705 706 707 708		1SS133
D 501 502		RD3R0ESB2
D 512 513		1SS133
D 601		RD4R7JSB2
D 703		HZS9LA2
D 709 710 773 774		1SS133
D 711		HZS6LB2
D 712		1SS133
D 761 762 765 769 770		ERA15-02VH
D 763		HZS7LC2
D 764		HZS9LA1
D 766		HZS6LB2
D 768		HZS9LB2
L 501	Ferri-Inductor	CTF-157
L 502 701 702 703	Ferri-Inductor	LAU4R7K
L 601 704	Ferri-Inductor	LAU101K
L 705	Ferri-Inductor	LAU2R2M
TC 701	Trimmer	CCG-070
X 501	Crystal Resonator	CSS1030
X 601	Crystal Resonator	CSS1056
X 701	Radiator	CSS1303
S 701		CSG1063
VR 601	Semi-fixed 2.2kΩ(B)	CCP1202
EF 761		CCG1006
BZ 701		CPV1011
	FM/AM Tuner Unit	CWE1360

RESISTORS

=====Circuit Symbol & No.	Part Name=====	Part No.
R 353 354 401 402 409 506		RS1/16S821J
R 357 405 406 723 758 803 804		RS1/16S223J
R 358 361		RS1/16S512J
R 359 465 509		RS1/16S103J
R 360 367 368 514 515 519 520 521 522 523		RS1/16S102J
R 363 539		RS1/16S563J
R 407 408 536 537 706 707 709 751 752 753		RS1/16S473J
R 410		RS1/16S821J
R 411 412		RS1/16S104J
R 455 456		RS1/16S272J
R 457 458		RS1/16S151J
R 459 460 501 702 703		RS1/16S101J
R 461 462 463		RD1/4PS472J L
R 464		RD1/4PS223J L
R 466 467		RD1/4PS102J L
R 468 469		RS1/16S162J
R 470 474		RS1/16S152J
R 472		RD1/4PS122J L
R 473		RS1/16S122J
R 479 480 481 482 512 530 540 606 784 785		RS1/16S472J
R 502		RS1/16S331J
R 503 603		RS1/16S332J
R 504		RS1/16S330J
R 505		RS1/16S680J
R 508		RS1/16S103J
R 513 602		RS1/16S152J
R 517 528 529 541 542 543 544 724 737 738		RS1/16S222J
R 518 741 742 743 774		RD1/4PS222J L
R 524 605 609 610 611 612 704 705 716		RD1/4PS102J L
R 526		RD1/4PS472J L
R 531		RD1/4PS472J L
R 532 533		RS1/8S473J
R 534		RS1/10S472J
R 538 601 614 615 616 617 721 722 783 805		RS1/16S102J
R 545		RS1/16S683J
R 560		RS1/10S221J
R 561		RS1/10S153J
R 562 727		RS1/10S103J
R 604		RD1/4PS750J L
R 607		RS1/16S683J
R 608		RS1/16S333J
R 613		RD1/4PS102J L
R 701		RS1/16S620J
R 708		RD1/4PS473J L
R 715		RS1/10S124J
R 718 726 769 777 779		RS1/10S472J
R 719		RS1/10S102J
R 720 762 763 765 767 776		RS1/10S473J
R 725 761 764		RS1/10S223J
R 731 732 733		RD1/4PS472J L

=====Circuit Symbol & No.	Part Name=====	Part No.
R 734 735 736		RS1/10S472J
R 739 740 744 745 746		RS1/16S222J
R 747 748 749 750		RS1/16S681J
R 754 755 756 789 807 808 809 810		RS1/16S473J
R 757 775		RS1/10S222J
R 759		RS1/10S222J
R 768		RS1/10S101J
R 773		RS1/8S103J
R 778		RS1/10S471J
R 780		RD1/4PS122JL
R 786		RS1/10S183J
R 795		RS1/8S103J
R 801 802		RS1/16S181J
R 806 812		RS1/16S102J
CAPACITORS		
C 351 352 514		CEA4R7M35LL
C 353 362 486 505 509 520 534 535 603 615		CKSRYB103K50
C 354 363		CEA4R7M16NPLL
C 355 358 364 453 454 455 456 457 458 703		CEA4R7M35LL
C 356 452 763		CEA470M10LL
C 357 361 368		CEA101M10LL
C 359		CEA010M50NPLL
C 360 367 451 459 460 485 559		CKSQYB104K25
C 365 366 483 484 607 712 805 806		CEA100M16LL
C 369 370		CKSRYB222K50
C 371 465 466 561 564 801 802 803 804		CEA010M50LL
C 372 546 718		CCSRCH101J50
C 401 402 403 404 405 406 705		CEA2R2M50LL
C 461 462 467 468		CEA100M10NPLL
C 463 464		CKSRYB822K50
C 469 470		CKSRYB152K50
C 471 472		CKSQYB183K25
C 473 474		CKSRYB221K50
C 475 476		CEA2R2M35NPLL
C 477 478		CKSQYB333K50
C 479 480 508 524 531 704 714		CCSRCH101J50
C 501		CCSQCH101J50
C 502		CKSYB103K50
C 504 516 713 766		CKSQYB103K50
C 506		CKSRYB681K50
C 507		CCSCH101J50
C 510		CKSYB223K50
C 511		CKSRYB223K25
C 515	4.7µF/16V	CCH1165
C 517		CKSYB473K50
C 518		CEAR47M50LL
C 519		CFTLA474J50
C 521 522		CCSRCH270J50
C 523 602 606 707		CKSQYB473K50
C 533		CKSRYB102K50
C 555 556 557 558		CEAR22M50LL
C 560	4700µF/16V	CCH1188
C 562		CEA220M16LL
C 563		CEA330M10LL
C 601 608		CKSRYB472K50
C 604		CEA1R5M50LL
C 605		CEA0R1M50LL
C 609 610		CKSYB105K16
C 611		CSZA3R3M16
C 613 614		CCSRCH220J50
C 701		CKSRYB102K50
C 702		CKSRYB103K50
C 708		CEA220M6R3LL
C 709		CKSYB104K25
C 710		CCSRCH120J50

=====Circuit Symbol & No.	Part Name=====	Part No.
C 711		CCSRCH330J50
C 715		CKSRYB103K50
C 716		CCSRCH101J50
C 761	1500µF/16V	CCH1201
C 762		CKSYB103K50
C 765		CEAS101M10
C 767		CEA101M10LL
C 768		CKSYB473K50

Unit Number : CWM3995(KEH-P6200RDS/EW,KEH-P6100RDS/EW)
: CWM4002(KEH-P25RDS/EW,KEH-P15RDS/EW)
Unit Name : Tuner Amp Unit

MISCELLANEOUS

IC 451		SN761025DL
IC 501		LC72140MK
IC 551		PALO03AK
IC 601		PMR001BK
IC 701		S-80734ANK
IC 702		PD4544A
IC 703		PA0051AMK
IC 704		TA2050SK
Q 403 404		DTC314TS
Q 405		DTA124ES
Q 406	(KEH-P6200RDS,P6100RDS)	DTA114ES
Q 407 408	(KEH-P6200RDS,P6100RDS)	DTC114TS
Q 501		2SC2498
Q 503 505		2SK330
Q 504 506 507 601 602 701 761 762		2SC2458
Q 508 552 702 714		DTC124ES
Q 703 709 770		2SA1048
Q 710 769 771 773 779		DTC114ES
Q 712		2SB1243
Q 763		2SD1859
Q 767 768 772		2SA1150
Q 777	(KEH-P6200RDS,P6100RDS)	2SA1048
Q 778		2SD2395
D 501 502		RD3R0ESB2
D 512 513		1SS133
D 601		RD4R7JSB2
D 701 702 704 705 706 707 708		1SS133
D 703		HZS9LA2
D 709 710 712		1SS133
D 711		HZS6LB2
D 761 762 765 769 770		ERA15-02VH
D 763		HZS7LC2
D 764		HZS9LA1
D 766		HZS6LB2
D 768		HZS9LB2
D 773 774	(KEH-P6200RDS,P6100RDS)	1SS133
L 501	Ferri-Inductor	CTF-157
L 502 701 702 703	Ferri-Inductor	LAU4R7K
L 601 704	Ferri-Inductor	LAU101K
L 705	Ferri-Inductor(KEH-P6200RDS,P6100RDS)	LAU2R2M
X 501	Crystal Resonator	CSS1030
X 601	Crystal Resonator	CSS1056
X 701	Radiator	CSS1303
S 701		CSG1063
VR 601	Semi-fixed 2.2kΩ(B)	CCP1202
EF 761		CCG1006
BZ 701		CPV1011
	FM/AM Tuner Unit	CWE1360

=====Circuit Symbol & No.	Part Name=====	Part No.
RESISTORS		
R 365 366		RS1/16S0R0J
R 407 408 536 537 706 707 709 751 752 753		RS1/16S473J
R 409 506		RS1/16S821J
R 410		RS1/16S821J
R 411 412	(KEH-P6200RDS,P6100RDS)	RS1/16S104J
R 455 456		RS1/16S272J
R 457 458		RS1/16S151J
R 459 460 501 702 703		RS1/16S101J
R 461 462 463		RD1/4PS472JL
R 464		RD1/4PS223JL
R 465 509		RS1/16S103J
R 466 467		RD1/4PS102JL
R 468 469		RS1/16S162J
R 470 474		RS1/16S332J
R 472		RD1/4PS122JL
R 473		RS1/16S122J
R 479 480 481 482 512 530 540 606		RS1/16S472J
R 502		RS1/16S331J
R 503 603		RS1/16S332J
R 504		RS1/16S330J
R 505		RS1/16S680J
R 508		RS1/16S103J
R 513 602		RS1/16S152J
R 514 515 519 520 521 522 523		RS1/16S102J
R 517 528 529 541 542 543 544 724 737 738		RS1/16S222J
R 518 741 742 743 774		RD1/4PS222JL
R 524 605 609 610 611 612 704 705 716		RD1/4PS102JL
R 526		RD1/4PS472JL
R 531		RD1/4PS472JL
R 532 533		RS1/8S473J
R 534		RS1/10S472J
R 538 601 614 615 616 617 721 722 805		RS1/16S102J
R 539		RS1/16S563J
R 545		RS1/16S683J
R 560		RS1/10S221J
R 561		RS1/10S153J
R 562 727		RS1/10S103J
R 604		RD1/4PS750JL
R 607		RS1/16S683J
R 608		RS1/16S333J
R 613		RD1/4PS102JL
R 701		RS1/16S620J
R 708		RD1/4PS473JL
R 712 810	(KEH-P25RDS,P15RDS)	RS1/16S473J
R 713 809	(KEH-P6200RDS,P6100RDS)	RS1/16S473J
R 715		RS1/10S124J
R 718 726 769 777 779		RS1/10S472J
R 719		RS1/10S102J
R 720 762 763 765 767 776		RS1/10S473J
R 723 758 803 804		RS1/16S223J
R 725 761 764		RS1/10S223J
R 731 732 733		RD1/4PS472JL
R 734 735 736		RS1/10S472J
R 739 740 744 745 746		RS1/16S222J
R 747 748 749 750		RS1/16S681J
R 754 755 756 789 807 808		RS1/16S473J
R 757 775		RS1/10S222J
R 759		RS1/10S222J
R 768		RS1/10S101J
R 773		RS1/8S103J

=====Circuit Symbol & No.	Part Name=====	Part No.
R 778		RS1/10S471J
R 780		RD1/4PS122JL
R 783	(KEH-P6200RDS,P6100RDS)	RS1/16S102J
R 784 785	(KEH-P6200RDS,P6100RDS)	RS1/16S472J
R 786	(KEH-P6200RDS,P6100RDS)	RS1/10S183J
R 795		RS1/8S103J
R 801 802		RS1/16S181J
R 806 812		RS1/16S102J
CAPACITORS		
C 372 546 718		CCSRCH101J50
C 403 404 705		CEA2R2M50LL
C 405 406	(KEH-P6200RDS,P6100RDS)	CEA2R2M50LL
C 451 459 460 485 559		CKSQYB104K25
C 452 763		CEA470M10LL
C 453 454 455 456 457 458 514 703		CEA4R7M35LL
C 461 462 467 468		CEA100M10NPLL
C 463 464		CKSRYB822K50
C 465 466 561 564 801 802 803 804		CEA010M50LL
C 469 470		CKSRYB152K50
C 471 472		CKSQYB183K25
C 473 474		CKSRYB221K50
C 475 476		CEA2R2M35NPLL
C 477 478		CKSQYB333K50
C 479 480 508 524 531 704 714		CCSRCH101J50
C 483 484 607 712 805 806		CEA100M16LL
C 486 505 509 520 534 535 603 615		CKSRYB103K50
C 501		CCSQCH101J50
C 502		CKSYB103K50
C 504 516 713 766		CKSQYB103K50
C 506		CKSRYB681K50
C 507		CCSCH101J50
C 510		CKSYB223K50
C 511		CKSRYB223K25
C 515	4.7µF/16V	CCH1165
C 517		CKSYB473K50
C 518		CEAR47M50LL
C 519		CFTLA474J50
C 521 522		CCSRCH270J50
C 523 602 606 707		CKSQYB473K50
C 533		CKSRYB102K50
C 555 556 557 558		CEAR22M50LL
C 560	4700µF/16V	CCH1188
C 562		CEA220M16LL
C 563		CEA330M10LL
C 601 608		CKSRYB472K50
C 604		CEA1R5M50LL
C 605		CEA0R1M50LL
C 609 610		CKSYB105K16
C 611		CSZA3R3M16
C 613 614		CCSRCH220J50
C 701		CKSRYB102K50
C 702		CKSRYB103K50
C 708		CEA220M6R3LL
C 709		CKSYB104K25
C 710		CCSRCH220J50
C 711		CCSRCH330J50
C 715		CKSRYB103K50
C 716		CCSRCH101J50
C 761	1500µF/16V	CCH1201
C 762		CKSYB103K50
C 765		CEAS101M10
C 767		CEA101M10LL
C 768		CKSYB473K50

=====Circuit Symbol & No. Part Name=====										Part No.
Unit Number : CWE1360										
Unit Name : FM/AM Tuner Unit										
MISCELLANEOUS										
IC	1									PA2021B
IC	2									PA2022B
Q	1									3SK263
Q	2									2SC2712
Q	3									DTC124EU
Q	51									DTC124TU
Q	52									2SC4098
Q	53									2SA1162
Q	190									2SA1586
Q	191	202								2SC2712
Q	201									2SK932
D	1									1SV251
D	2	3	4							KV1410-F1
D	5									MA151WK
D	8	201								MA157-MR
D	191									MA157-MR
D	202									MA110-1A
D	203									SVC253
L	1									LCTBR12K2125
L	2	4								CTC1108
L	3									CTC1105
L	5									CTC1107
L	51									LAU2R2K
L	52									LAU150K
L	201									LAU4R7K
L	203									CTF1026
L	204									LAU151K
L	206									LAU3R3K
L	207									LAU330K
T	2									CTE1077
T	51									CTC1119
T	204									CTE1074
T	205									CTE1075
TC	1									CCL1038
CF	51	52	201							CTF1292
CF	202									CTF1300
X	151									CSS1308
X	201									CSS1111
VR	51									CCP1210
VR	52									CCP1211
VR	151									CCP1206
AR	1									DSP-201M
RESISTORS										
R	1	3	16	20						RS1/16S223J
R	2									RS1/16S331J
R	4	14								RS1/16S563J
R	6									RS1/16S123J
R	8									RS1/16S271J
R	9									RS1/16S153J
R	10	32								RS1/16S682J
R	11									RS1/16S474J
R	13									RS1/16S104J
R	15	103	217							RS1/16S563J
R	17	21	206							RS1/16S332J
R	18									RS1/16S223J
R	22									RS1/16S560J
R	51									RS1/16S391J
R	52									RS1/16S182J

=====Circuit Symbol & No. Part Name=====										Part No.
R	53									RS1/16S751J
R	54									RS1/16S823J
R	55	102	161	209	222					RS1/16S822J
R	56									RS1/16S272J
R	60									RS1/16S123J
R	71									RS1/16S272J
R	72									RS1/16S821J
R	73									RS1/16S331J
R	74									RS1/16S681J
R	101									RS1/16S224J
R	104									RS1/16S822J
R	153	159								RS1/16S103J
R	154									RS1/16S123J
R	155									RS1/16S822J
R	156									RS1/16S822J
R	157									RS1/16S562J
R	158									RS1/10S682J
R	160									RS1/16S273J
R	190									RS1/16S473J
R	191	207								RS1/16S225J
R	192									RS1/16S221J
R	193									RS1/16S224J
R	194									RS1/16S225J
R	203									RS1/16S102J
R	204	213								RS1/16S222J
R	205									RS1/16S333J
R	208									RS1/16S752J
R	214	218								RS1/16S333J
R	215	224								RS1/16S330J
R	216									RS1/16S152J
R	220									RS1/16S100J
R	221									RS1/16S273J
CAPACITORS										
C	1									CCSQCH220J50
C	2	11	19	29	51	52	62	63		CKSRYB103K50
C	3									CCSRCH470J50
C	4									CCSRRH270J50
C	6									CCSRRH040C50
C	8									CKSRYB102K50
C	9									CCSRCH470J50
C	10									CCSRRH100D50
C	12	13								CCSRCH050D50
C	14	20	21	151	227	228				CKSRYB103K50
C	15	55	58	101	161					CKSQYB104K16
C	16									CCSRCH020C50
C	17									CCSRRH100D50
C	18									CCSRRH090D50
C	23	56	104	162						CEAD10M50LL
C	24	106	213	236						CKSRYB223K25
C	26	28	212							CEA330M10LL
C	27									CKSRYB103K50
C	31	73								CKSRYB333K16
C	32	103	105	206						CKSRYB222K50
C	34									CKSRYB682K50
C	53	54								CCSRCH270J50
C	57	64	66							CCSRCH101J50
C	59									CEAR47M50LL
C	61									CEAR22M50LL
C	72									CKSRYB102K50
C	164	209	210	215	220	223	225	235		CKSRYB103K50
C	102	154	156	163	203	219	238			CKSQYB473K16
C	152	153								CKSRYB223K25
C	155									CEAR68M50LL

=====Circuit Symbol & No. Part Name=====	Part No.
C 158	CEA100M16LL
C 159	CCSRCH271J50
C 160	CKSYB105K16
C 190	CKSRYB103K50
C 191	CEA150M10LS
C 201	CKSRYB222K50
C 204	CCSRCH151J50
C 205 221	CCSRCH680J50
C 207	CEA101M16LL
C 208	CCSRCH330J50
C 211	CKSYB105K16
C 214 230	CKSRYB472K50
C 216	CCSRCH100D50
C 217	CCSRCH221J50
C 218	CEA4R7M35LL
C 222	CCSRCH150J50
C 224	CCSRUJ181J50
C 226	CEA4R7M35LL
C 229	CEAR68M50LL
C 232	CCSRTH220J50
C 233	CKSRYB332K50
C 234	CEA220M6R3LL
C 239	CKSRYB332K50
C 240	CKSRYB103K50

Unit Number : CWM3981(KEH-P7200RDS/EW)
: CWM3997(KEH-P7100RDS/EW)
Unit Name : Key Board Unit

MISCELLANEOUS

IC 901	PD6122A
IC 902	RS-30K
D 901	MA151WK-MT
D 902	MA151WA-MN
D 903 (KEH-P7200RDS)	MA3062L
D 903 (KEH-P7100RDS)	MA3056M
L 901 Inductor	LCTA100K3225
X 901 Crystal Oscillator	CSS1325
S 901 907 913	CSG1043
S 902 903 904 905 906 908 911 912 914 917	CSG1061
S 909 910 915 916 921	CSG1041
S 918 919 920 922 923 924	CSG1061
IL 901 902 903 904 905 906 Lamp 40mA 14V (KEH-P7200RDS)	CEL1341
IL 901 902 903 904 905 906 Lamp 40mA 14V (KEH-P7100RDS)	CEL1295
IL 907 Lamp 40mA 14V (KEH-P7200RDS)	CEL1387
IL 907 Lamp 40mA 14V (KEH-P7100RDS)	CEL1391
LCD901 LCD (KEH-P7200RDS)	CAW1266
LCD901 LCD (KEH-P7100RDS)	CAW1265

RESISTORS

R 901 902	RS1/10S222J
R 908 909 910 911 912 913 914 915 916 917	RS1/10S471J
R 918 919	RS1/10S471J
R 920	RS1/10S101J
R 922	RS1/10S472J
R 923	RS1/8S102J

CAPACITORS

C 901 902 903 905 906 908	CKSQYB103K25
C 904	CCH1198
C 907	CCH1214

=====Circuit Symbol & No. Part Name=====	Part No.

Unit Number : CWM4003(KEH-P6200RDS/EW,P25RDS/EW)
: CWM3996(KEH-P6100RDS/EW,P15RDS/EW)
Unit Name : Key Board Unit

MISCELLANEOUS

IC 901	PD6122A
D 901	MA151WK-MT
D 902	MA151WA-MN
D 903 (KEH-P6200RDS,P25RDS)	MA3062L
D 903 (KEH-P6100RDS,P15RDS)	MA3056M
L 901 Inductor	LCTA100K3225
X 901 Crystal Oscillator	CSS1325
S 901 907 913	CSG1064
S 902 903 904 905 906 908 911 912 914 917	CSG1061
S 909 910 915 916 921	CSG1041
S 918 919 920 922 923 924	CSG1061
IL 901 902 903 904 905 906 Lamp 40mA 14V (KEH-P6200RDS,P25RDS)	CEL1341
IL 901 902 903 904 905 906 Lamp 40mA 14V (KEH-P6100RDS,P15RDS)	CEL1295
IL 907 Lamp 40mA 14V (KEH-P6200RDS,P25RDS)	CEL1387
IL 907 Lamp 40mA 14V (KEH-P6100RDS,P15RDS)	CEL1391
LCD901 LCD (KEH-P6200RDS,P25RDS)	CAW1266
LCD901 LCD (KEH-P6100RDS,P15RDS)	CAW1265

RESISTORS

R 901 902	RS1/10S222J
R 908 909 910 911 912 913 914 915 916 917	RS1/10S471J
R 918 919	RS1/10S471J
R 921	RS1/10S473J
R 922	RS1/10S472J
R 923	RS1/8S102J

CAPACITORS

C 901 902 903 905 908	CKSQYB103K25
C 907 4.7µF/10V	CCH1214

Unit Number : CWM3952(KEH-P7200RDS/EW,KEH-P7100RDS/EW)
Unit Name : Deck Unit

MISCELLANEOUS

IC 251	CXA1911Q-T1
IC 351	PA2020A
Q 351	2SB1260
Q 352	2SC4102
D 351	MA141K-MH
VR 301 302 Semi-fixed 22kΩ(B)	CCP1129

RESISTORS

R 255 256	RS1/16S181J
R 271	RS1/16S183J
R 272	RS1/16S203J
R 273 274 275 276 322 323 351 352 353 354	RS1/16S102J
R 277 281 282 283 284 373 374 375	RS1/8S0R0J
R 278 301 302 371 404	RS1/16S0R0J
R 355	RS1/10S274J
R 356	RS1/10S202J
R 357	RS1/10S472J
R 358 359	RS1/10S103J
R 360	RS1/10S102J
R 361	RS1/10S622J
R 372	RS1/10S0R0J
R 401	RS1/16S821J
R 402	RS1/16S392J
R 403	RS1/16S105J

=====Circuit Symbol & No. Part Name=====		Part No.
CAPACITORS		
C 251 252 253 254		CKSRYB391K50
C 255 256		CKSRYB103K50
C 257 258		CEV470M6R3
C 271 307 308		CKSQYB104K16
C 272 301 302		CEV100M16
C 303 304		CEV010M50
C 351		CKSYB224K25
C 352		CKSQYB392K50
C 353 356		CKSQYB103K50
C 354		CKSQYB473K50
C 355		CKSYB104K50
C 401		CCSRCH151J50
C 402		CKSYB684K16
C 403		CKSYB333K25
C 404		CKSRYB333K16
Unit Number : CWM4212(KEH-P6200RDS/EW,KEH-P6100RDS/EW)		
Unit Name : Deck Unit		
MISCELLANEOUS		
IC 251		CXA1911Q-01
IC 351		PA2020A
Q 351		2SB1260
Q 352		2SC4102
D 351		MA141K-MH
VR 301 302	Semi-fixed 22kΩ(B)	CCP1129
RESISTORS		
R 255 256		RS1/16S181J
R 271		RS1/16S183J
R 272		RS1/16S203J
R 274 275 279 322 323 351 352 353 354		RS1/16S102J
R 281 282 283 284 373 374 375		RS1/8S0R0J
R 301 302 371		RS1/16S0R0J
R 355		RS1/10S274J
R 356		RS1/10S202J
R 357		RS1/10S472J
R 358 359		RS1/10S103J
R 360		RS1/10S102J
R 361		RS1/10S622J
R 372		RS1/10S0R0J
CAPACITORS		
C 251 252 253 254		CKSRYB391K50
C 255 256		CKSRYB103K50
C 257 258		CEV470M6R3
C 271 307 308		CKSQYB104K16
C 272 301 302		CEV100M16
C 303 304		CEV010M50
C 351		CKSYB224K25
C 352		CKSQYB392K50
C 353 356		CKSQYB103K50
C 354		CKSQYB473K50
C 355		CKSYB104K50

=====Circuit Symbol & No. Part Name=====		Part No.
Unit Number : CWM3951(KEH-P25RDS/EW,KEH-P15RDS/EW)		
Unit Name : Deck Unit		
MISCELLANEOUS		
IC 251		TA7705F
IC 351		PA2020A
Q 351		2SB1260
Q 352		2SC4102
D 351		MA141K-MH
RESISTORS		
R 255 256		RS1/10S270J
R 257 258		RS1/10S334J
R 259 260		RS1/10S133J
R 271		RS1/8S333J
R 272		RS1/8S223J
R 281 282 283 284 371 373 374		RS1/8S0R0J
R 291 292 372		RS1/10S0R0J
R 351 352 353 354 360		RS1/10S102J
R 355		RS1/10S274J
R 356		RS1/10S202J
R 357		RS1/10S472J
R 358 359		RS1/10S103J
R 361		RS1/10S622J
CAPACITORS		
C 251 252 253 254		CKSQYB391K50
C 255 256		CEV221M4
C 257 258 353 356		CKSQYB103K50
C 271		CKSQYB104K16
C 272		CEV100M16
C 351		CKSYB224K25
C 352		CKSQYB392K50
C 354		CKSQYB473K50
C 355		CKSYB104K50
Model	: (KEH-P7200RDS/EW,KEH-P7100RDS/EW)	
	(KEH-P6200RDS/EW,KEH-P6100RDS/EW)	
Unit Name	: P.C.Board Unit	
S 1 2	Switch (70μS,Load)	ESG1004
EGN 1	Photo-Interrupter	EGN1005
R 1		RD1/4HM181J
Model	: (KEH-P25RDS/EW,KEH-P15RDS/EW)	
Unit Name	: P.C.Board Unit	
S 1	Switch (Load)	ESG1004
EGN 1	Photo-Interrupter	EGN1005
R 1		RD1/4HM181J
Unit Number :		
Unit Name	: Reel P.C.Board	
EGN 2 3	Photo-Reflector	EGN1004
Miscellaneous Parts List		
M 1	Motor Unit (Main)	EXA1399
M 2	Motor Unit (Sub)	EXA1382
HD 1	Head Assy	EXA1404

6. BLOCK DIAGRAM

● **KEH-P7200RDS/EW**

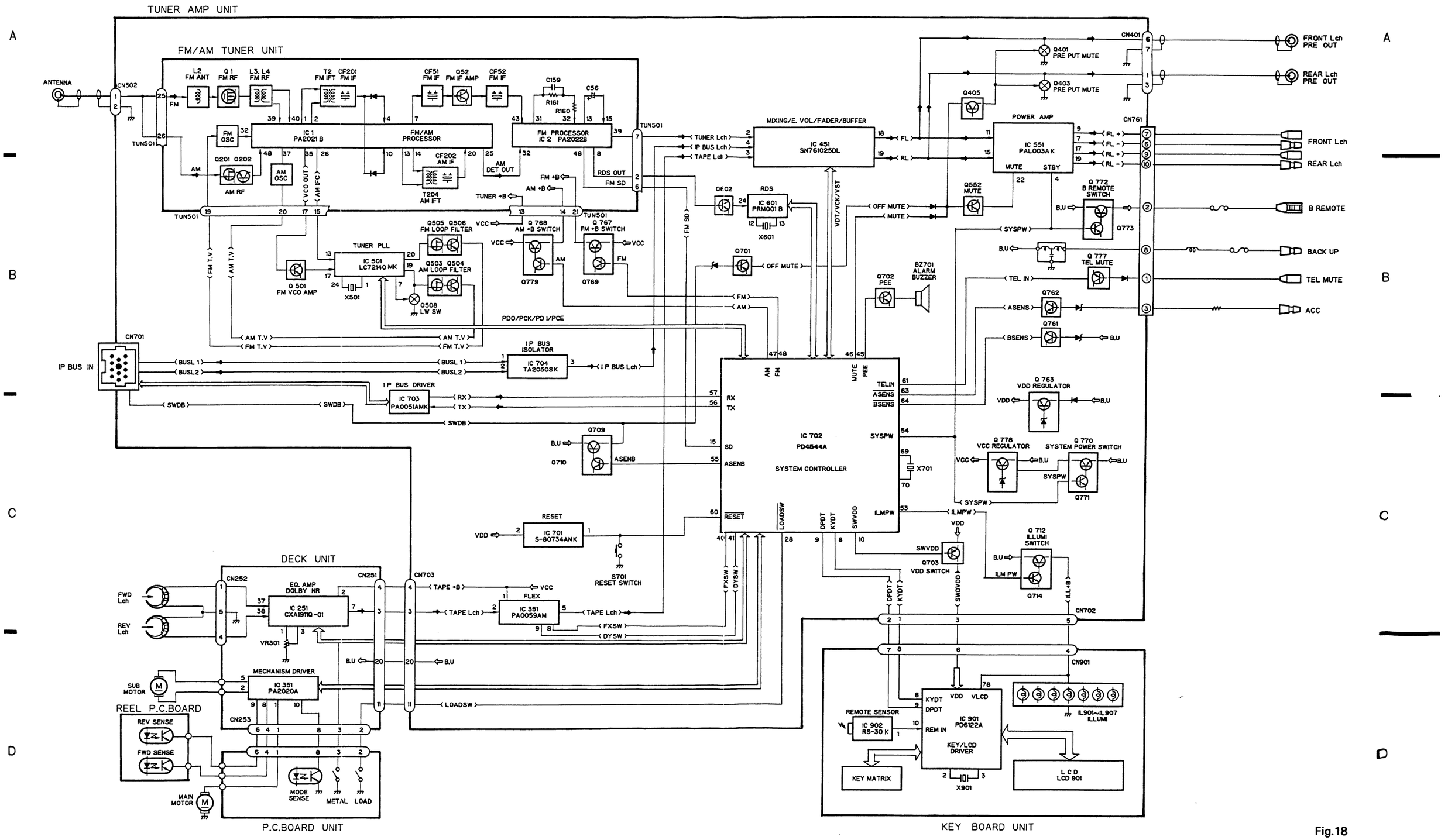


Fig.18

● KEH-P6200RDS/EW

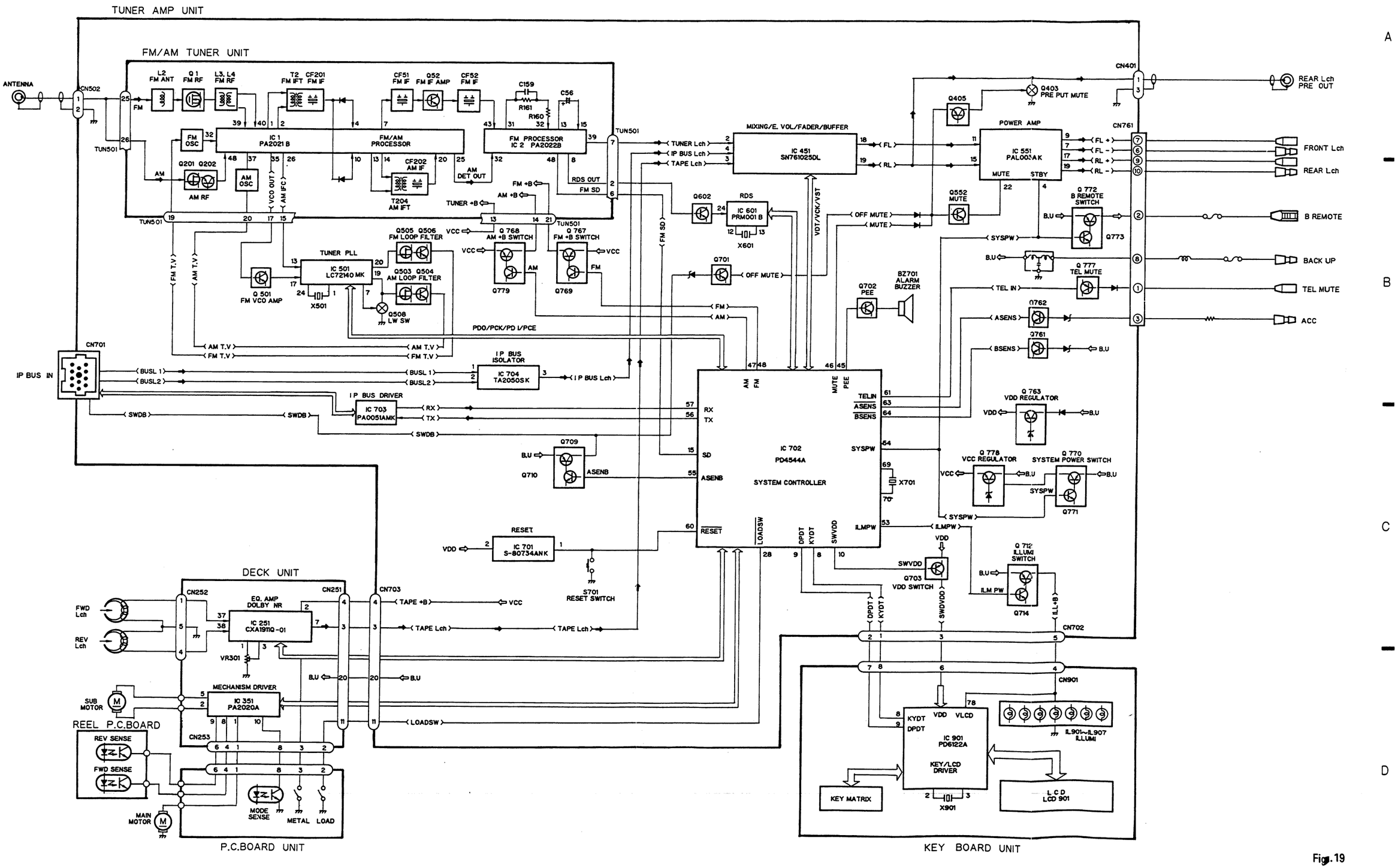


Fig. 19

7. CIRCUIT DIAGRAM AND PATTERN

7.1 TUNER AMP UNIT(KEH-P7200RDS,P7100RDS)

● **Connection Diagram**

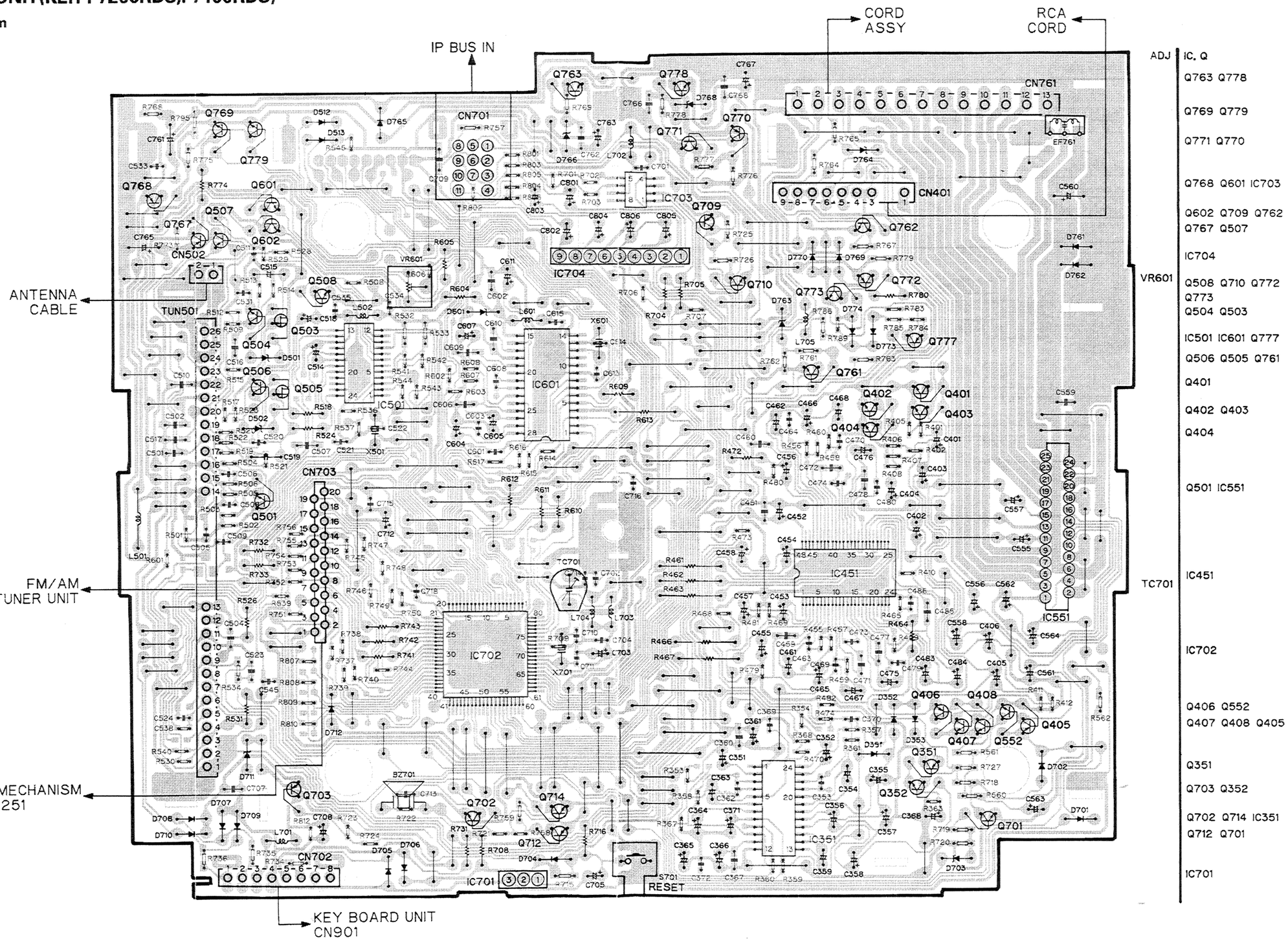
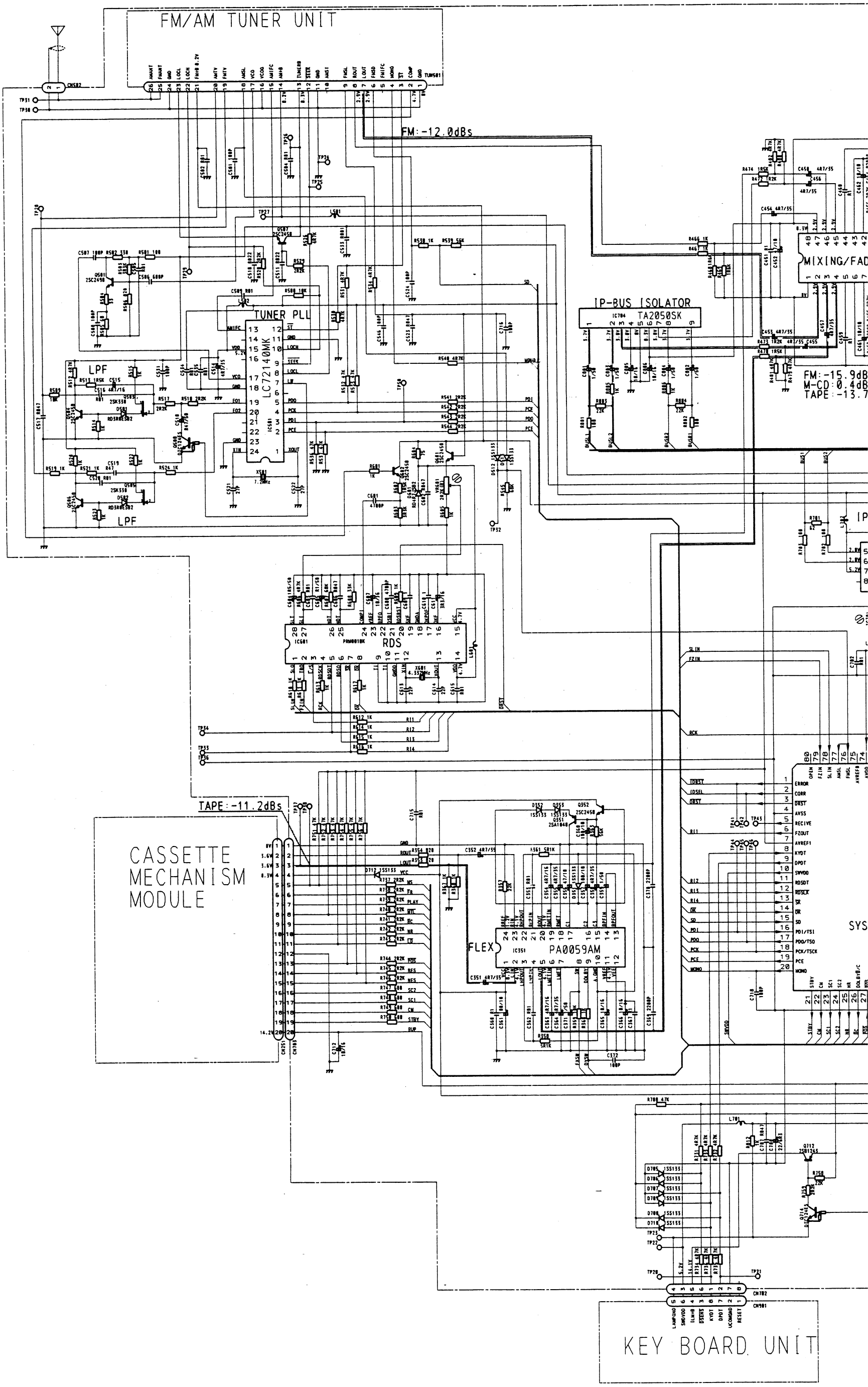
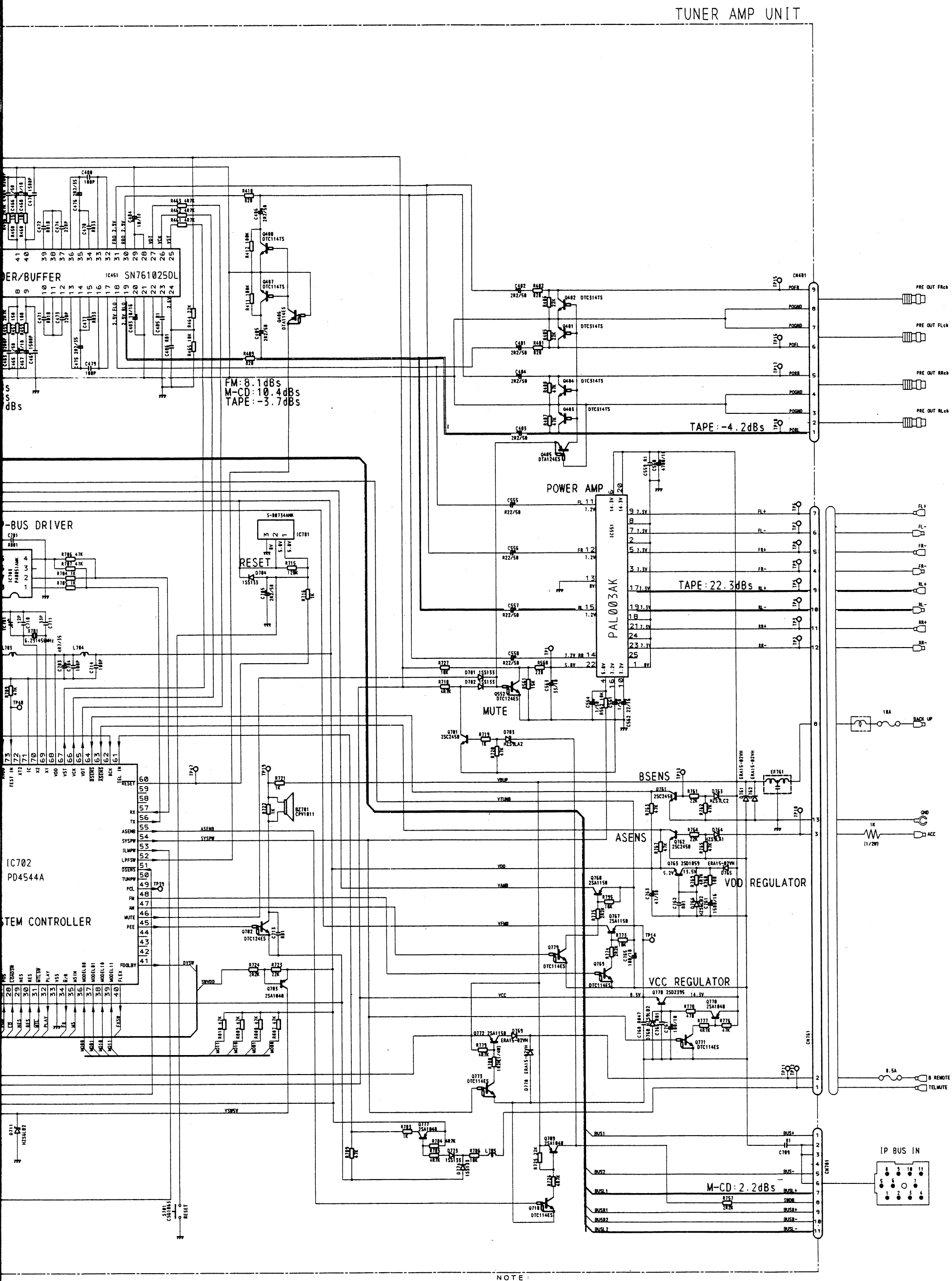


Fig.20

● Circuit Diagram



TUNER AMP UNIT



NOTE:

Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

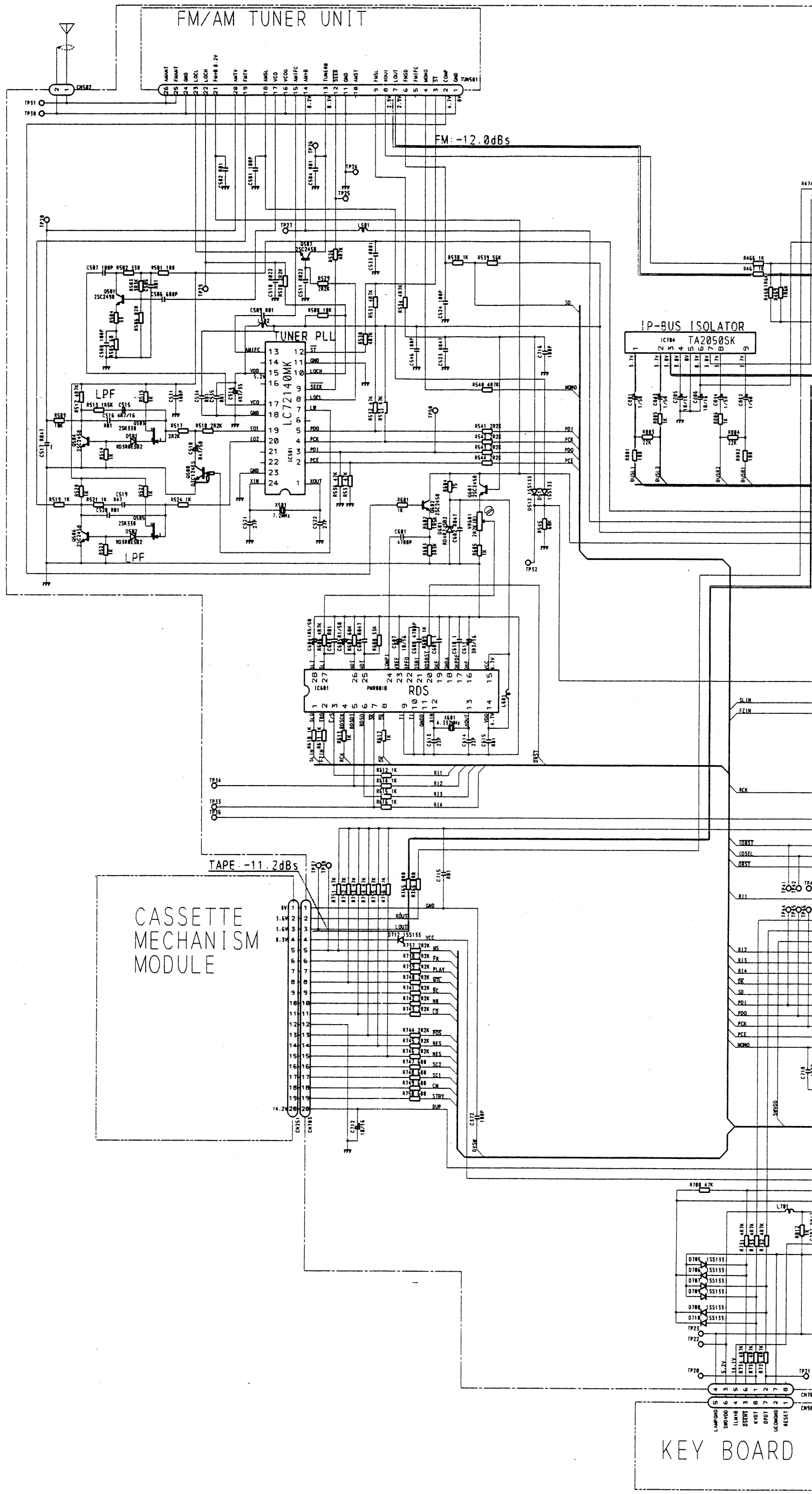
Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

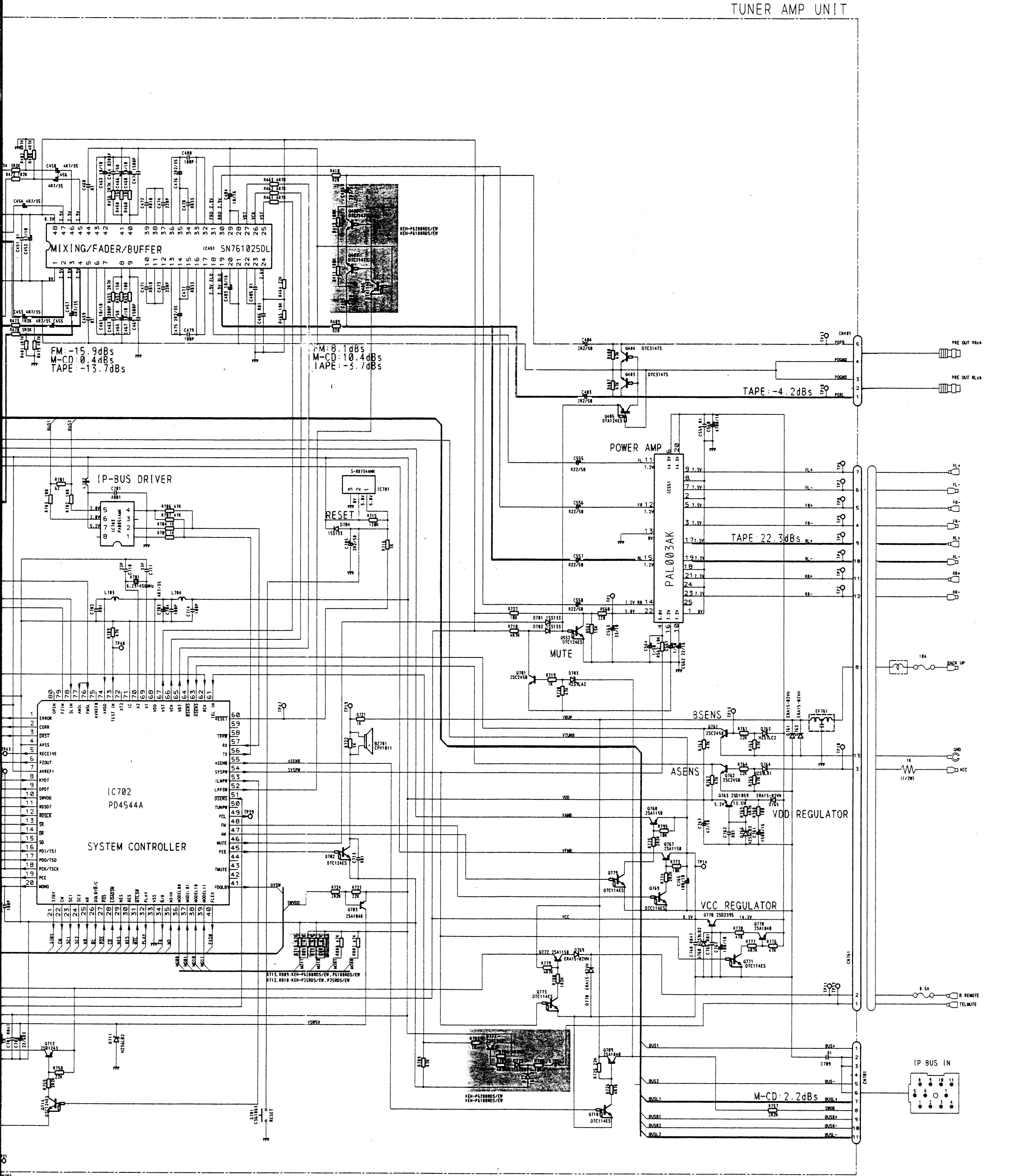
Fig.21

7.2 TUNER AMP UNIT(KEH-P6200RDS,P6100RDS,P25RDS,P15RDS)

● **Circuit Diagram**



TUNER AMP UNIT



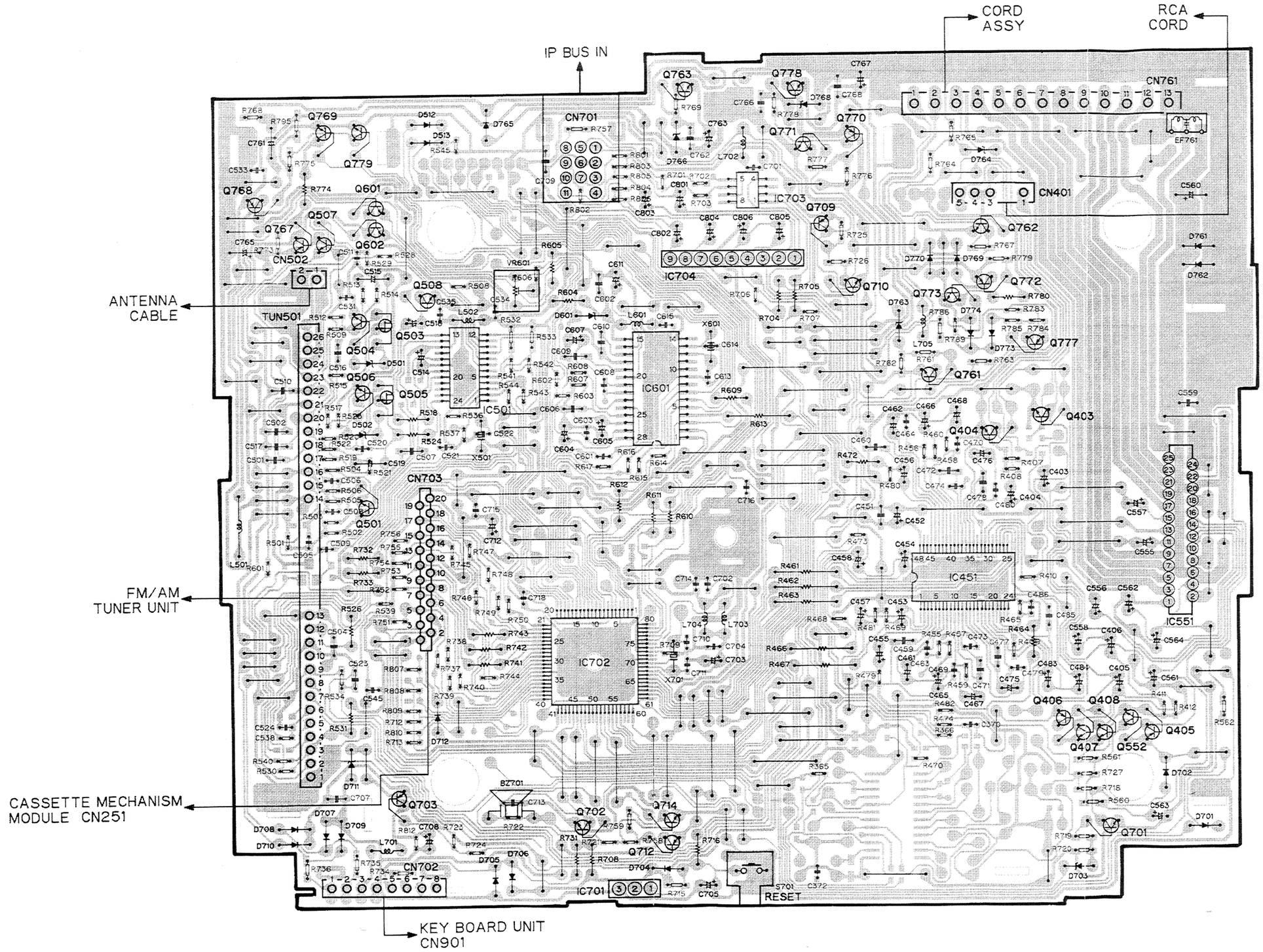
NOTE:

- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

Fig.22

● **Connection Diagram**



ADJ	IC, Q	
	Q763 Q778	A
	Q769 Q779	
	Q771 Q770	
	Q768 Q601 IC703	—
	Q602 Q709 Q762 Q767 Q507	
	IC704	
VR601	Q508 Q710 Q772 Q773 Q504 Q503	B
	IC501 IC601 Q777	
	Q506 Q505 Q761	
	Q403	
	Q404	—
	Q501 IC551	
	IC451	C
	IC702	
	Q406 Q552 Q407 Q408 Q405	—
	Q703	
	Q702 Q714 Q712 Q701	D
	IC701	

Fig. 23

1 2 3 4 5 6

45 46

7.3 FM/AM TUNER UNIT

● Circuit Diagram

NOTE :
- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

FM/AM TUNER UNIT

FM SIGNAL
MW/LW SIGNAL

FM FRONT END
MW/LW OSC
FM OSC
MW/LW DET
FM MPX
PNS
MW/LW RF
FM IF
IC1 PA2021B
IC2 PA2022B
TUNER AMP UNIT TUN501

Fig.24

● **Connection Diagram**

IC. Q Q202 Q201 Q1 Q3 Q2 IC1 Q51 Q52 Q53 Q190 Q191 IC2

ADJ TC1 L2 T2 L4 T204 T205 L5 VR51 VR52 VR151 T51

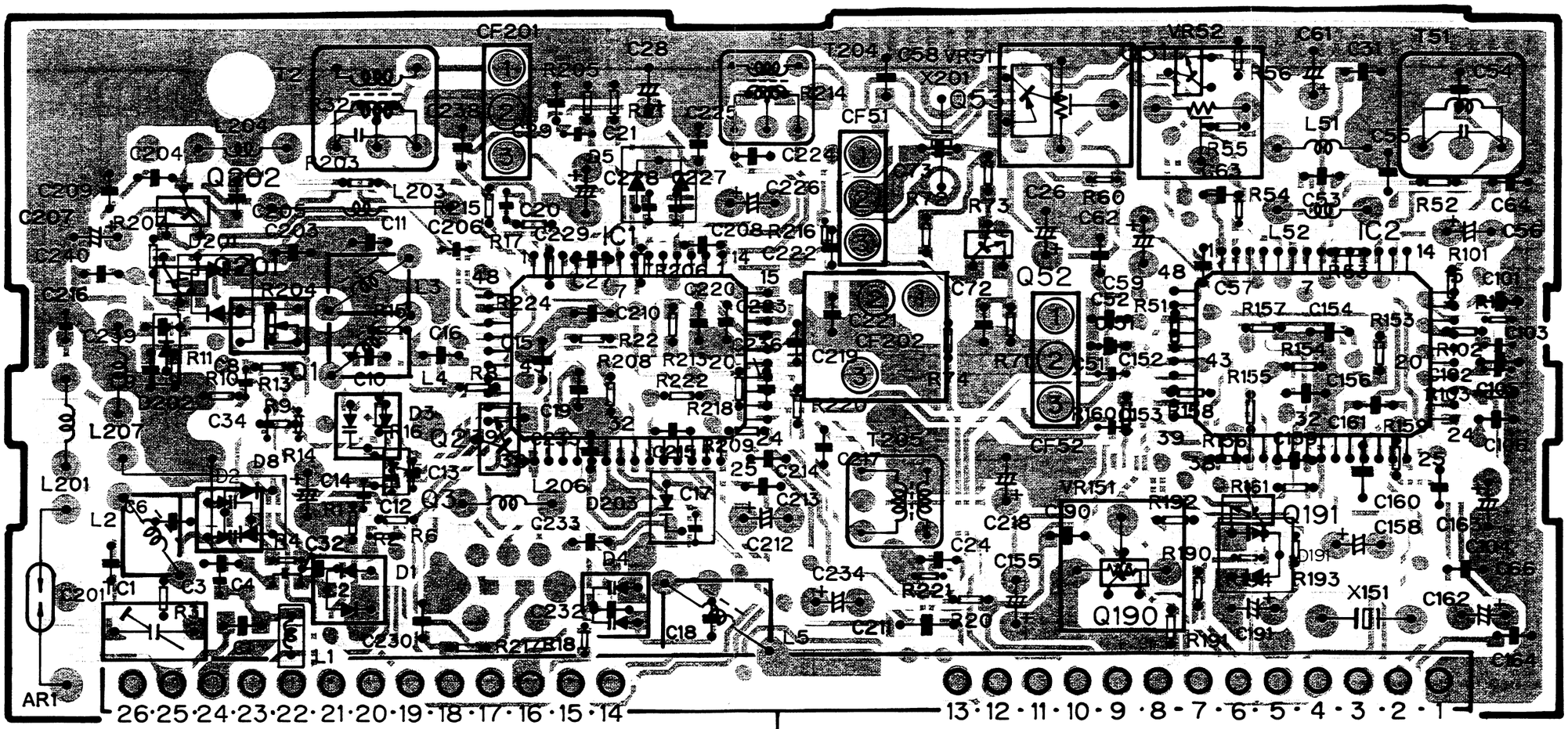


Fig.25

7.4 KEY BOARD UNIT

● **Circuit Diagram**

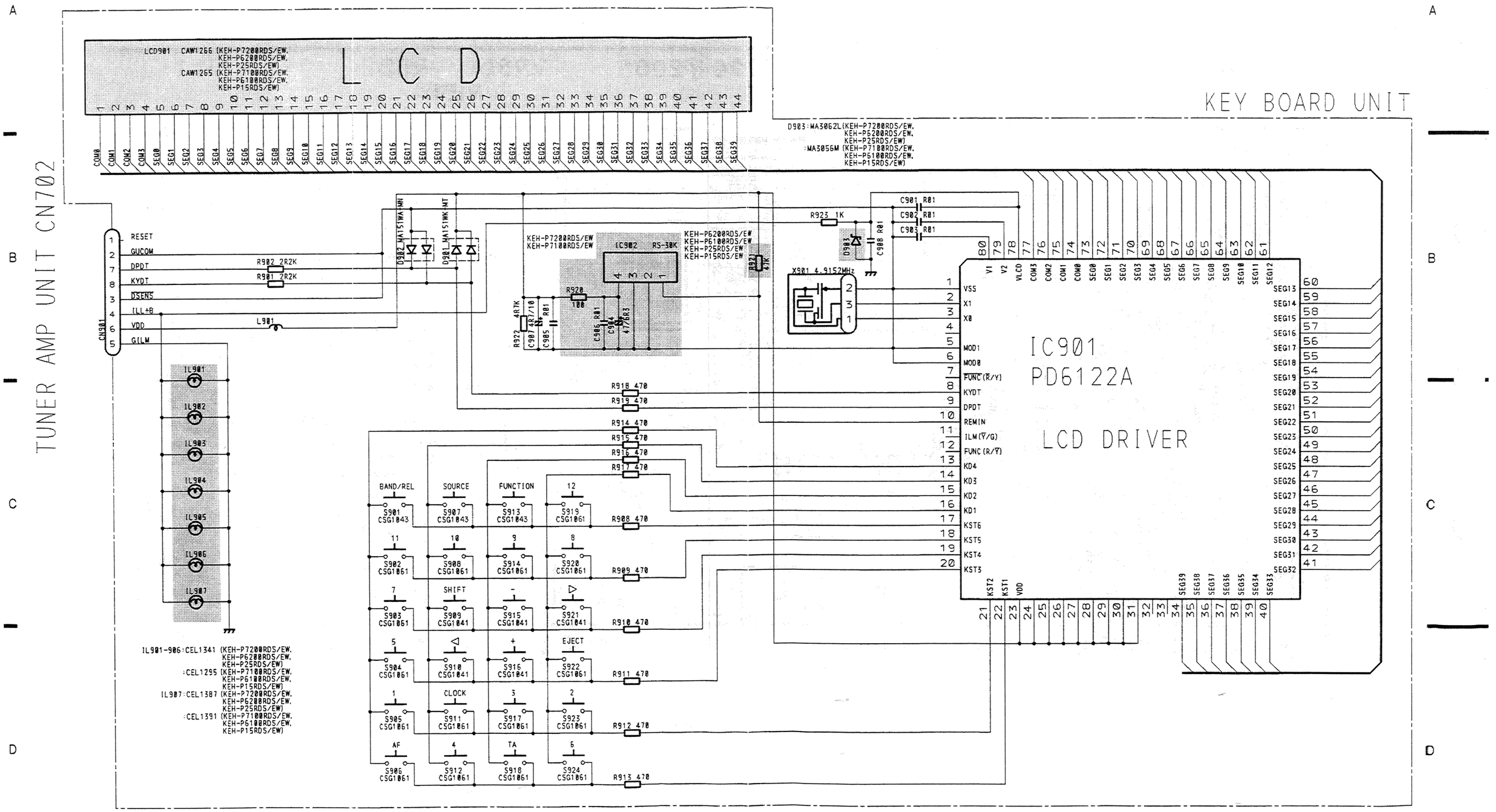


Fig.26

● **Connection Diagram**

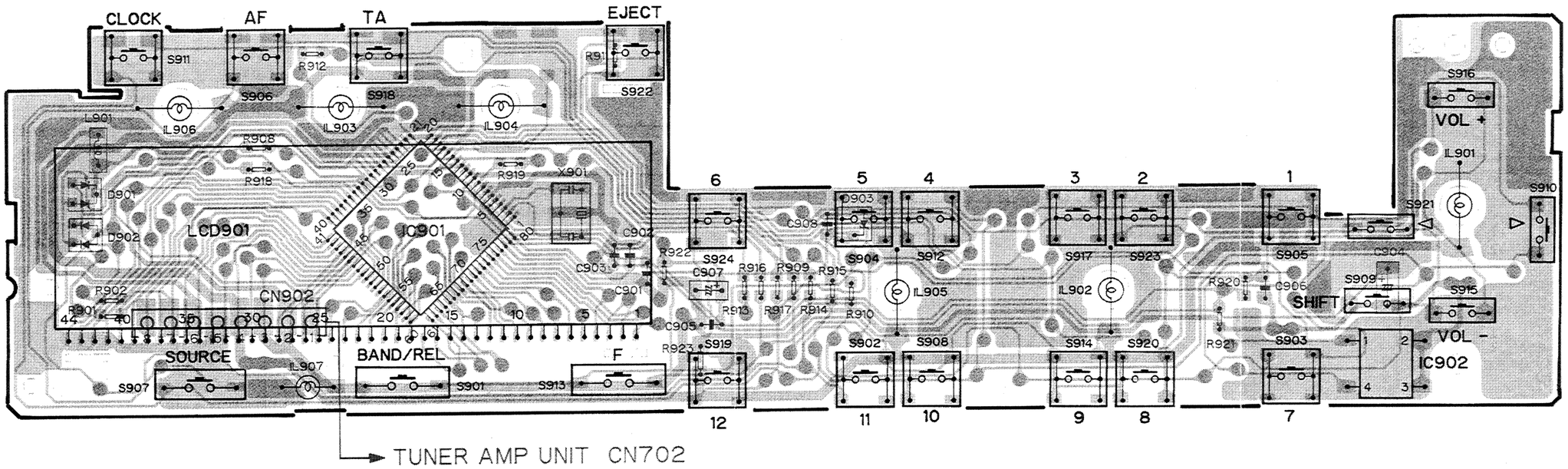
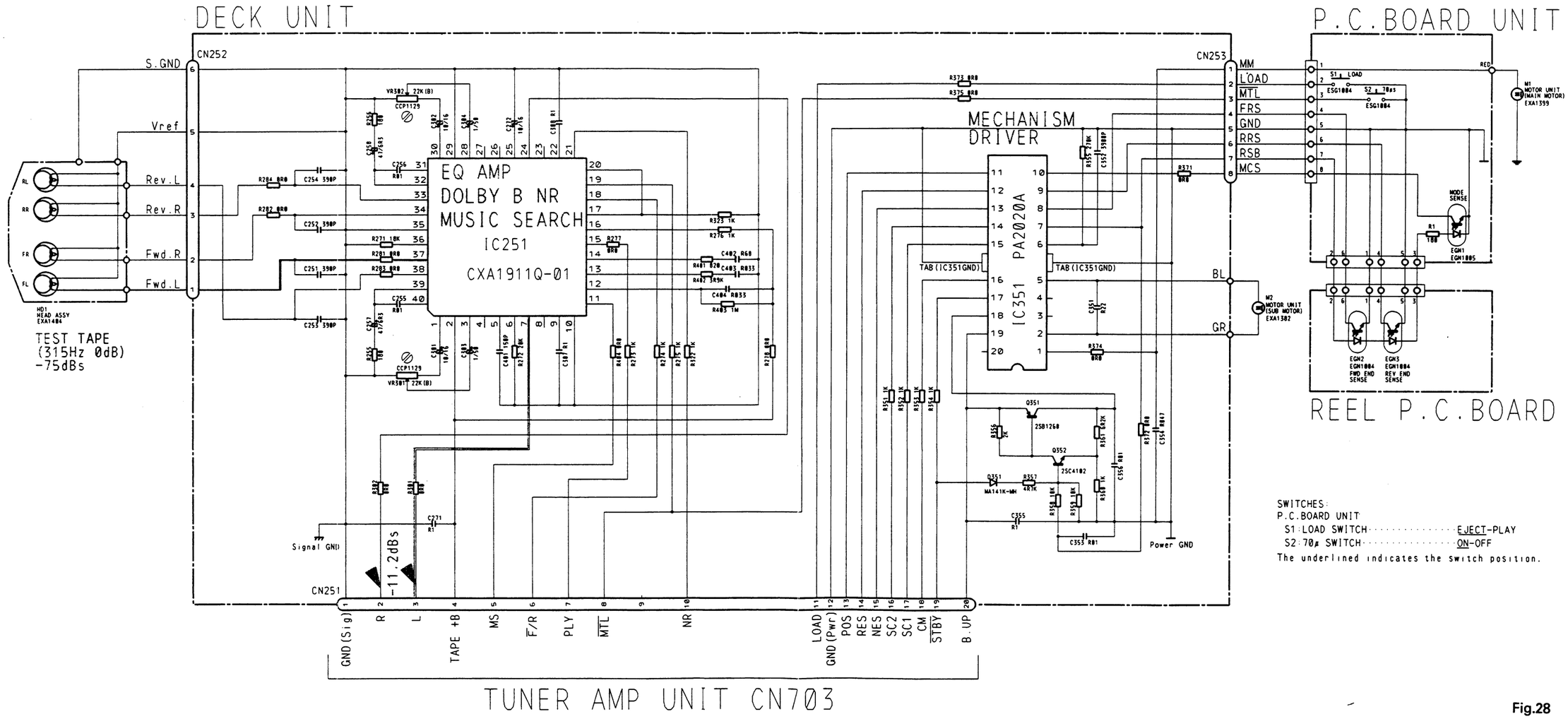


Fig.27

7.5 DECK UNIT(KEH-P7200RDS,P7100RDS)

● **Circuit Diagram**



SWITCHES:
P.C.BOARD UNIT
S1:LOAD SWITCH ..... EJECT-PLAY
S2:70μ SWITCH ..... ON-OFF
The underlined indicates the switch position.

Fig.28

● **Connection Diagram**

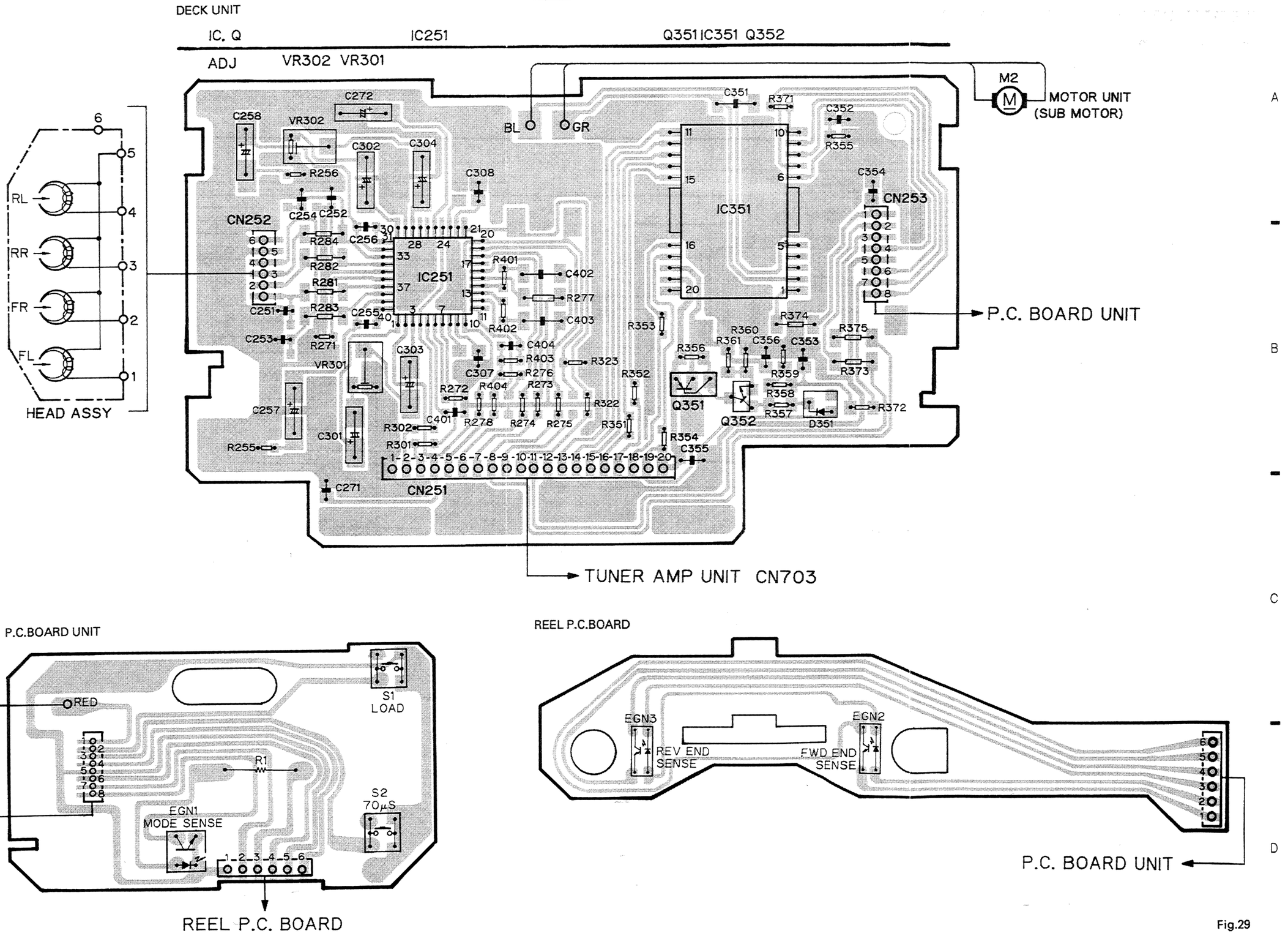
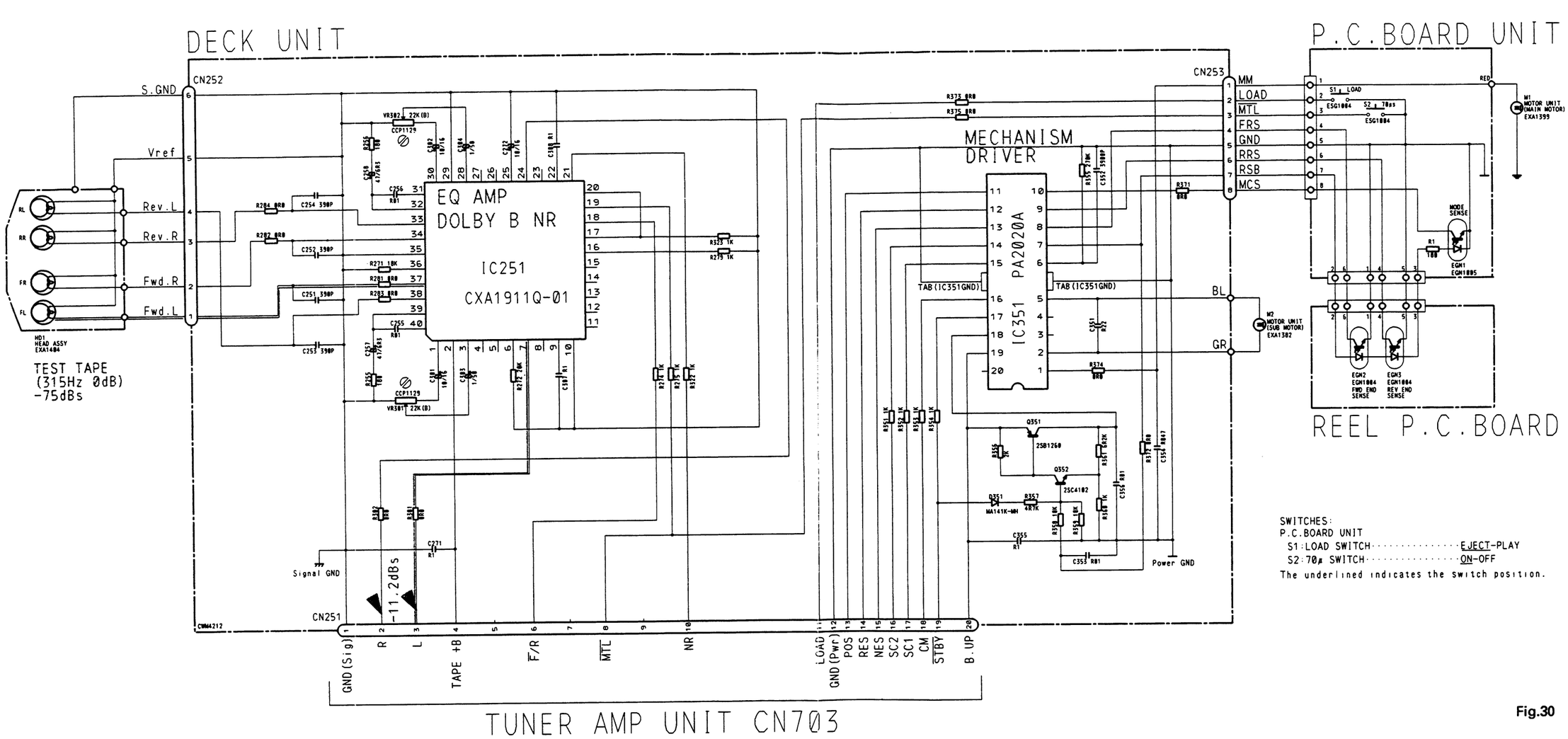


Fig.29

7.6 DECK UNIT(KEH-P6200RDS,P6100RDS)

● **Circuit Diagram**



SWITCHES:
P.C.BOARD UNIT
S1:LOAD SWITCH ..... EJECT-PLAY
S2:70μ SWITCH ..... ON-OFF
The underlined indicates the switch position.

Fig.30

● **Connection Diagram**

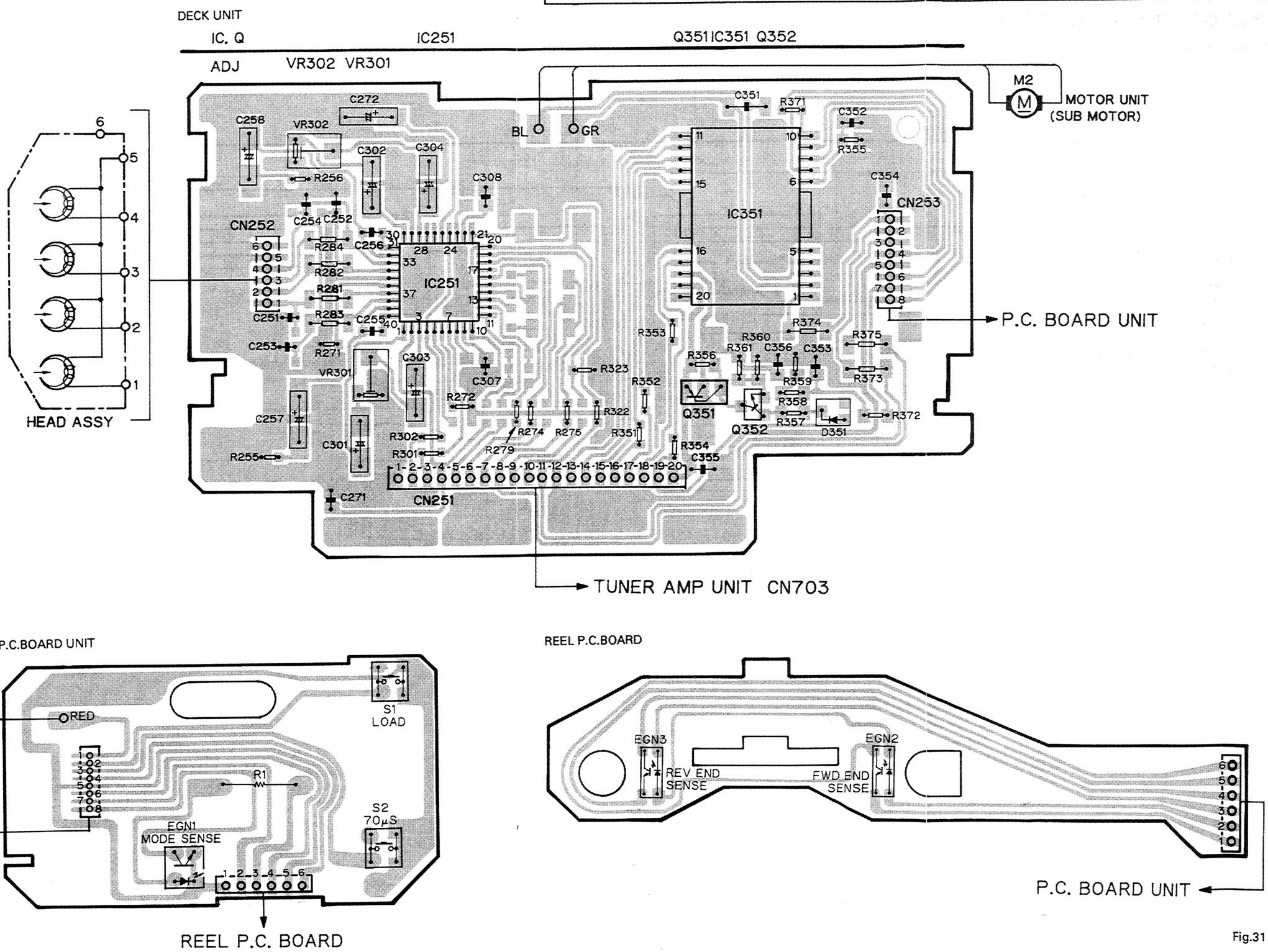
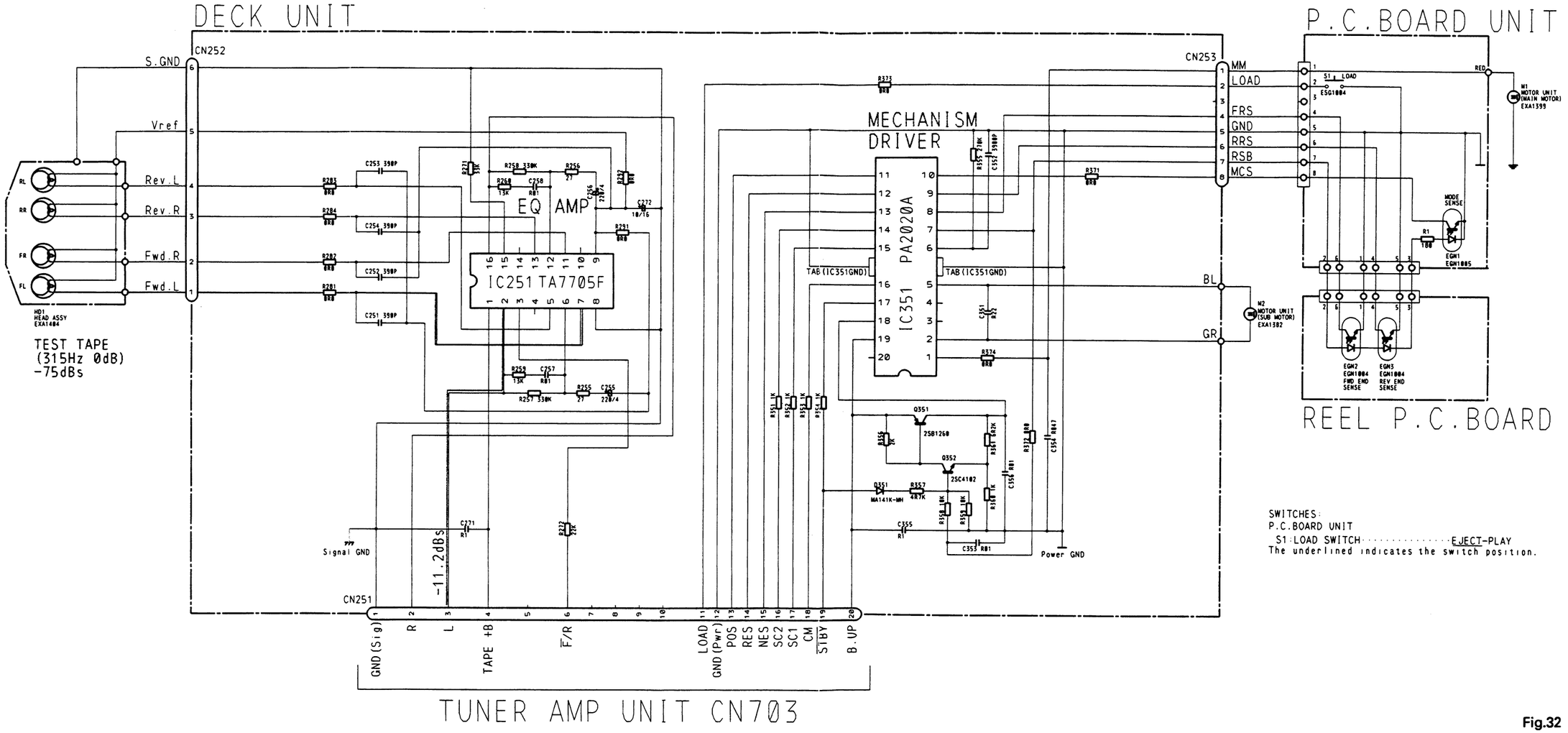


Fig.31

7.7 DECK UNIT(KEH-P25RDS,P15RDS)

● **Circuit Diagram**



SWITCHES:
P.C.BOARD UNIT
S1:LOAD SWITCH ..... EJECT-PLAY
The underlined indicates the switch position.

Fig.32

● **Connection Diagram**

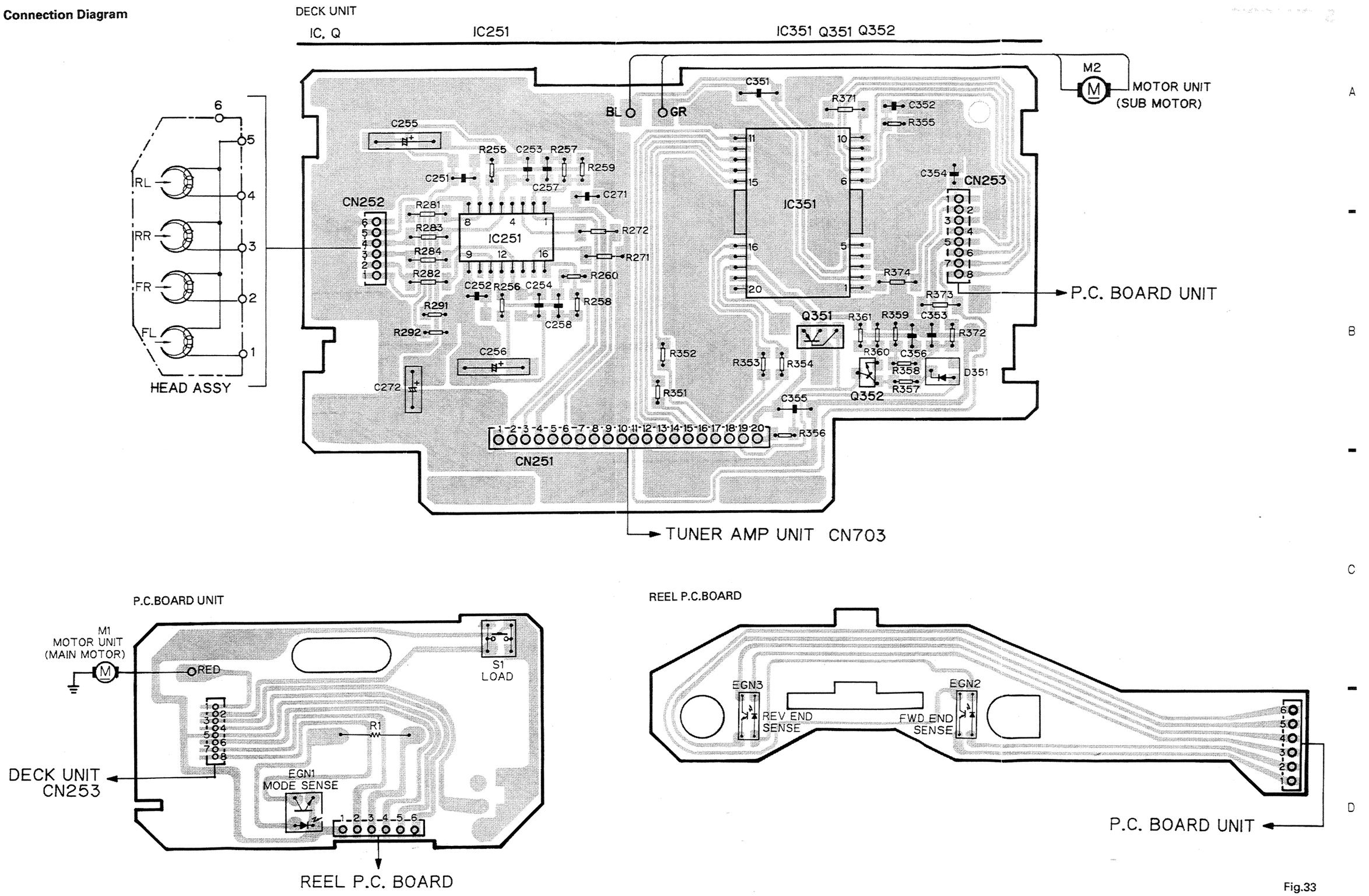


Fig.33

8. CHASSIS EXPLODED VIEW

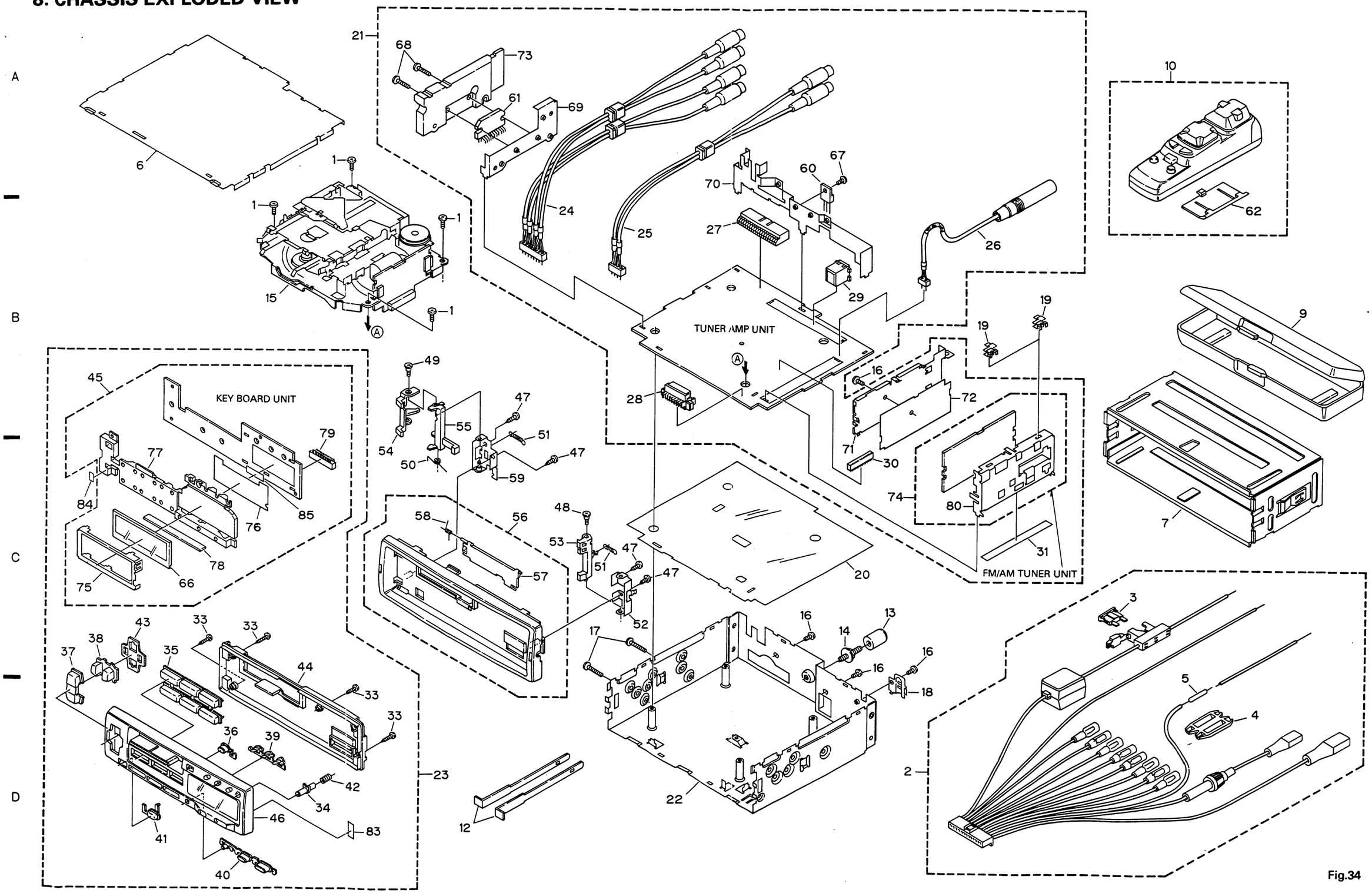


Fig.34

NOTES:

- Parts marked by "✱"are generally unavailable because they are not in our Master Spare Parts List.
- Parts marked by "⦿"are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

● Parts List(KEH-P7200RDS/EW)

Mark	No.	Description	Part No
	1	Screw	BSZ26P050FMC
	2	Cord Assy	CDE4394
	3	Fuse(10A)	CEK1136
	4	Cap	CNS1472
	5	Resistor	RS1/2P102JL
	6	Case	CNB1846
	7	Holder	CNC4946
	8	•••••	
	9	Case	CNS3550
	10	Remote Control Assy	CXA7611
	11	•••••	
	12	Handle	CNC5850
	13	Bush	CNV1009
	14	Screw	CBA1334
	15	Cassette Mechanism Module	EXK3110
	16	Screw	BSZ30P050FMC
	17	Screw	BSZ30P160FMC
	18	Holder	CNC4963
	19	Holder	CNC5704
	20	Insulator	CNM4115
	21	Tuner Amp Unit	CWM3980
	22	Chassis Unit	CXA7552
	23	Detach Grille Assy	CXA6647
	24	Cord(CN401)	CDE4397
	25	•••••	
	26	Antenna Cable	CDH1206
	27	Connector(CN761)	CKM1210
	28	Socket(CN702)	CKS3260
	29	Connector(CN701)	CKS3261
	30	Connector(CN703)	CKS3262
	31	Insulator	CNM4243
	32	•••••	
	33	Screw	BPZ20P100FZK
	34	Button(Detach)	CAC4107
	35	Button(1-12)	CAC4172
	36	Button(Eject)	CAC4227
	37	Button(VOL)	CAC4322
	38	Button({})	CAC4323
	39	Button	CAC4324
	40	Button	CAC4327

Mark	No.	Description	Part No
	41	Button(Shift)	CAC4343
	42	Spring	CBH1571
	43	Cushion	CNM4241
	44	Cover	CNS3281
	45	Key Board Unit	CWM3981
	46	Grille Unit	CXA7781
	47	Screw	BPZ20P080FMC
	48	Screw	CBA1215
	49	Screw	CBA1271
	50	Spring	CBH1566
	51	Spring	CBH1567
	52	Holder	CNC5694
	53	Arm	CNV4176
	54	Arm	CNV4177
	55	Arm	CNV4178
	56	Panel Unit	CXA7233
	57	Door	CAT1671
	58	Spring	CBH1371
	59	Holder Unit	CXA7727
	60	Transistor(Q778)	2SD2395
	61	IC(IC551)	PAL003AK
	62	Battery Cover	CNS3477
	63	•••••	
	64	•••••	
	65	•••••	
	66	LCD(LCD901)	CAW1266
	67	Screw	BSZ30P080FMC
	68	Screw	BSZ30P120FMC
	69	Holder	CNC5530
	70	Holder	CNC5711
	71	Holder	CNC5815
	72	Insulator	CNM4317
	73	Heat Sink	CNR1381
	74	FM/AM Tuner Unit	CWE1360
	75	Holder	CNC5561
✱	76	Reflector	CNM4299
	77	Lens	CNV3985
	78	Connector	CNV3986
	79	Plug(CN901)	CKS3259
✱	80	Holder	CNC5803
	81	•••••	
	82	•••••	
	83	Sheet	CNM4432
	84	Sheet	CNM4446
✱	85	Tape	CNM3891

- The KEH-P7100RDS/EW,KEH-P6200RDS/EW and KEH-P6100RDS/EW Parts Lists enumerate the parts which differ from those enumerated in the KEH-P7200RDS/EW Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly.
  The KEH-P7200RDS/EW Parts List is given on page 69.

No.	Description	KEH-P7200RDS/EW Part No.	KEH-P7100RDS/EW Part No.	KEH-P6200RDS/EW Part No.	KEH-P6100RDS/EW Part No.
10	Remote Control Assy	CXA7611	CXA7689	•••••	•••••
15	Cassette Mechanism Module	EXK3110	EXK3110	EXK3105	EXK3105
21	Tuner Amp Unit	CWM3980	CWM3980	CWM3995	CWM3995
22	Chassis Unit	CXA7552	CXA6871	CXA7553	CXA6873
23	Detach Grille Assy	CXA6647	CXA6634	CXA6653	CXA6644
24	Cord(CN401)	CDE4397	CDE4397	•••••	•••••
25	Cord(CN401)	•••••	•••••	CDE4399	CDE4399
34	Button(Detach)	CAC4107	CAC4252	CAC4107	CAC4252
35	Button(1-12)	CAC4172	CAC4171	CAC4172	CAC4171
36	Button(Eject)	CAC4227	CAC4153	CAC4227	CAC4153
37	Button(VOL)	CAC4322	CAC4320	CAC4322	CAC4320
38	Button(◁▷)	CAC4323	CAC4321	CAC4323	CAC4321
39	Button	CAC4324	CAC4342	CAC4324	CAC4342
44	Cover	CNS3281	CNS3140	CNS3281	CNS3140
45	Key Board Unit	CWM3981	CWM3997	CWM4003	CWM3996
46	Grille Unit	CXA7781	CXA7780	CXA7784	CXA7783
56	Panel Unit	CXA7233	CXA6958	CXA7763	CXA6958
57	Door	CAT1671	CAT1558	CAT1677	CAT1558
62	Battery Cover	CNS3477	CNS3476	•••••	•••••
66	LCD(LCD901)	CAW1266	CAW1265	CAW1266	CAW1265

- The KEH-P25RDS/EW and KEH-P15RDS/EW Parts Lists enumerate the parts which differ from those enumerated in the KEH-P7200RDS/EW Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The KEH-P7200RDS/EW Parts List is given on page 69.

No.	Description	KEH-P7200RDS/EW Part No.	KEH-P25RDS/EW Part No.	KEH-P15RDS/EW Part No.
2	Cord	CDE4394	CDE4395	CDE4395
10	Remote Control Assy	CXA7611	•••••	•••••
15	Cassette Mechanism Module	EXK3110	EXK3100	EXK3100
21	Tuner Amp Unit	CWM3980	CWM4002	CWM4002
22	Chassis Unit	CXA7552	CXA7580	CXA7554
23	Detach Grille Assy	CXA6647	CXA6655	CXA6651
24	Cord(CN401)	CDE4397	•••••	•••••
25	Cord(CN401)	•••••	CDE4399	CDE4399
34	Button(Detach)	CAC4107	CAC4107	CAC4252
35	Button(1-12)	CAC4172	CAC4172	CAC4171
36	Button(Eject)	CAC4227	CAC4227	CAC4153
37	Button(VOL)	CAC4322	CAC4322	CAC4320
38	Button(◁▷)	CAC4323	CAC4323	CAC4321
39	Button	CAC4324	CAC4324	CAC4342
44	Cover	CNS3281	CNS3281	CNS3140
45	Key Board Unit	CWM3981	CWM4003	CWM3996
46	Grille Unit	CXA7781	CXA7787	CXA7786
56	Panel Unit	CXA7233	CXA7763	CXA6958
57	Door	CAT1671	CAT1677	CAT1558
62	Battery Cover	CNS3477	•••••	•••••
66	LCD(LCD901)	CAW1266	CAW1266	CAW1265

9. CASSETTE MECHANISM MODULE EXPLODED VIEW

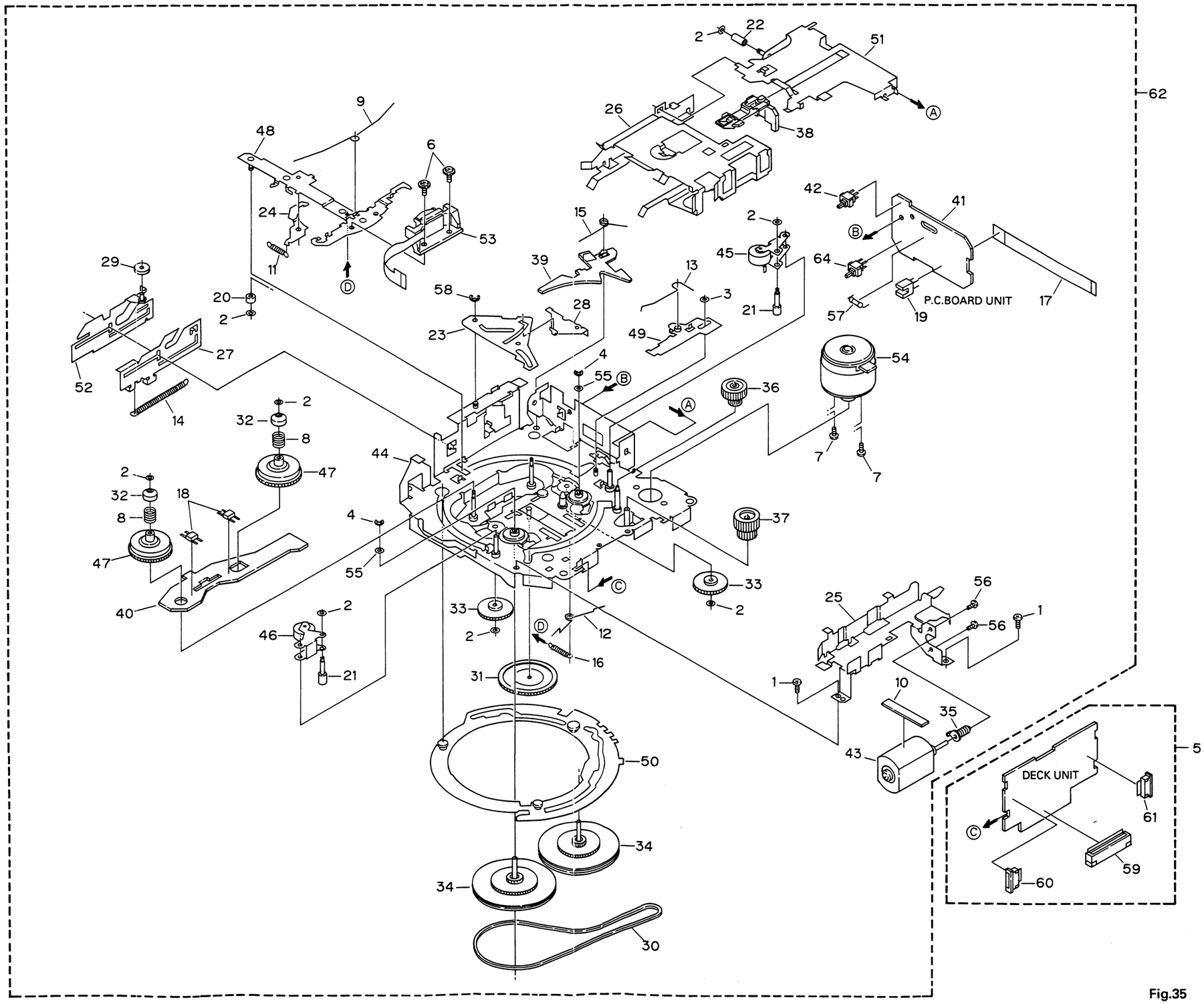


Fig.35

● Parts List(EXK3110)(KEH-P7200RDS/EW,KEH-P7100RDS/EW) (EXK3105)(KEH-P6200RDS/EW,KEH-P6100RDS/EW) (EXK3100)(KEH-P25RDS/EW,KEH-P15RDS/EW)

Mark No.	Description	Part No.
1	Screw	BSZ20P040FMC
2	Washer	CBF1037
3	Washer	CBF1038
4	Washer	CBG1003
5	Deck Unit(EXK3110)	CWM3952
	Deck Unit(EXK3105)	CWM4212
	Deck Unit(EXK3100)	CWM3951
6	Screw	EBA1028
7	Screw	EBA1037
8	Spring	EBH1531
9	Spring	EBH1512
10	Cushion	ENM1034
11	Spring	EBH1515
12	Spring	EBH1516
13	Spring	EBH1517
14	Spring	EBH1518
15	Spring(EXK3110,EXK3105)	EBH1519
16	Spring	EBH1537
17	Cord	EDD1015
18	Photo-reflector(EGN2,3)	EGN1004
19	Photo-interrupter(EGN1)	EGN1005
20	Roller	ELA1283
21	Shaft	ELA1347
22	Roller	ELA1348
23	Arm	ENC1396
24	Arm	ENC1397
25	Guide	ENC1398
26	Holder	ENC1399
27	Lever	ENC1400
28	Arm	ENC1401
29	Roller	ENR1027
30	Belt	ENT1027
31	Gear	ENV1347
32	Collar	ENV1349
33	Gear	ENV1350
34	Flywheel	ENV1410
35	Worm Gear	ENV1439
36	Worm Wheel	ENV1440
37	Gear	ENR1028
38	Lever	ENV1442
39	Arm(EXK3110,EXK3105)	ENV1445
40	Gathering P.C.Board	ENX1029
41	Gathering P.C.Board	ENX1030
42	Switch(S1)	ESG1004
43	Motor Unit(M2)	EXA1382
44	Chassis Unit	EXA1383
45	Pinch Holder Unit	EXA1384
46	Pinch Holder Unit	EXA1385
47	Reel Unit	EXA1386
48	Head Base Unit	EXA1387
49	Lever Unit	EXA1388
50	Gear Unit(EXK3110,EXK3105)	EXA1389
	Gear Unit(EXK3100)	EXA1393
51	Frame Unit	EXA1390
52	Lever Unit	EXA1391
53	Head Assy(HD1)	EXA1404
54	Motor Unit(M1)	EXA1399
55	Washer	HBF-179
56	Screw	JGZ20P025FNI
57	Resistor(R1)	RD1/4HM181J
58	Washer	YE20FUC
59	Connector(CN251)	CKS1711
60	Connector(CN252)	CKS2127
61	Connector(CN253)	CKS2129
62	Spare Unit(EXK3110,EXK3105)	EXA3001
	Spare Unit(EXK3100)	EXA3000
63	·····	
64	Switch(S2)(EXK3110,EXK3105)	ESG1004

10. PACKING METHOD

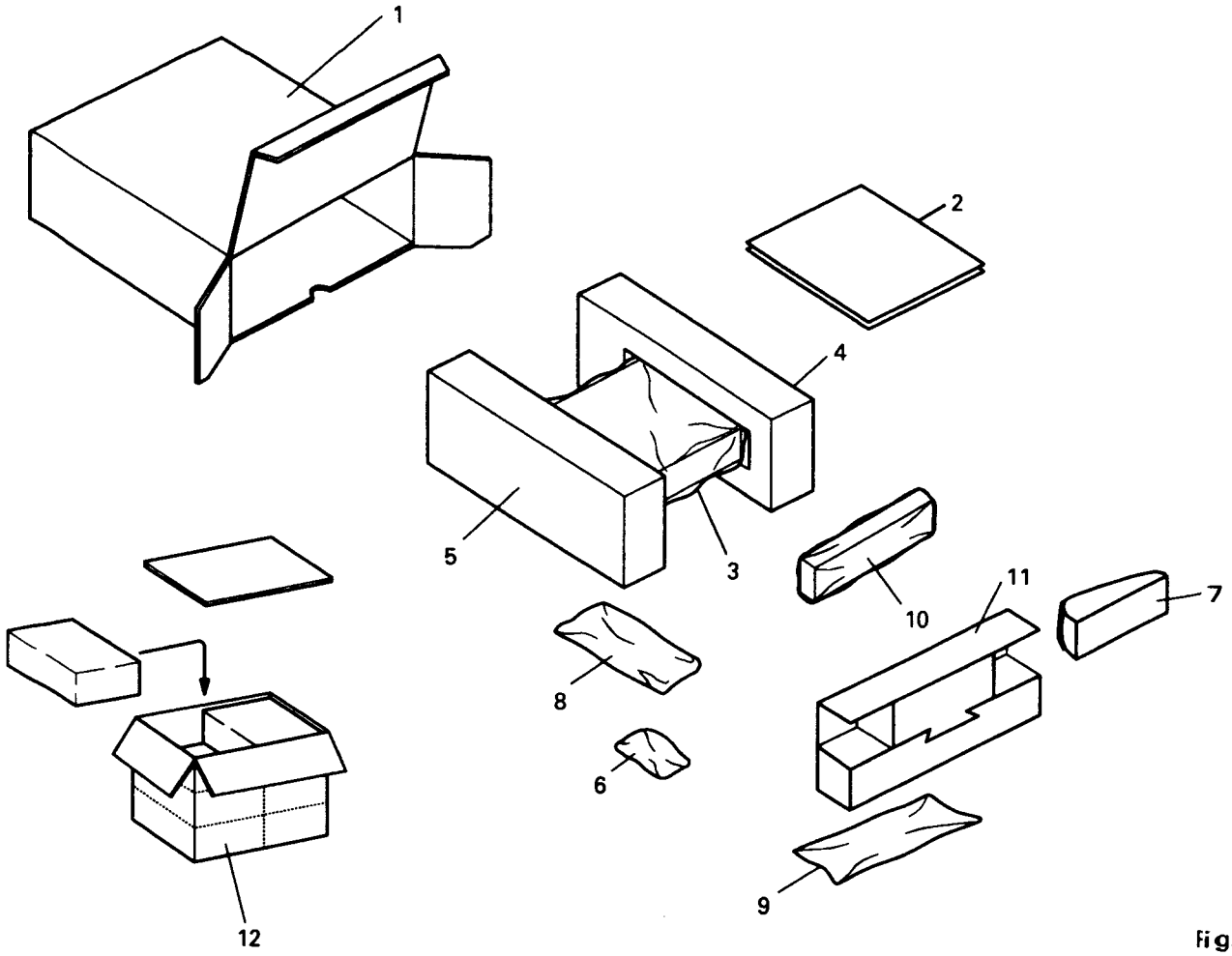


Fig.36

● **Parts List(KEH-P7200RDS/EW,P7100RDS/EW)**

*:Non Spare Parts

Mark	No.	Description	Part No.
	1	Carton(KEH-P7200RDS)	CHG2585
		Carton(KEH-P7100RDS)	CHG2547
	2-1	Owner's Manual	CRD1821
	2-2	Owner's Manual	CRD1822
	2-3	Installation Manual	CRD1823
*	2-4	Passport	CRY1013
*	2-5	Warranty Card	CRY1071
	3	Cover	CEG1196
	4	Protector	CHP1708
	5	Protector	CHP1709

Mark	No.	Description	Part No.
	6	Accessory Assy	CEA2081
	7	Remote Control Assy (KEH-P7200RDS)	CXA7611
		Remote Control Assy (KEH-P7100RDS)	CXA7689
	8	Cord Assy	CDE4394
	9	Accessory Assy	CEA2103
	10	Case	CNS3550
	11	Inner-Box	CHW1431
	12	Contain Box(KEH-P7200RDS)	CHL2585
		Contain Box(KEH-P7100RDS)	CHL2547

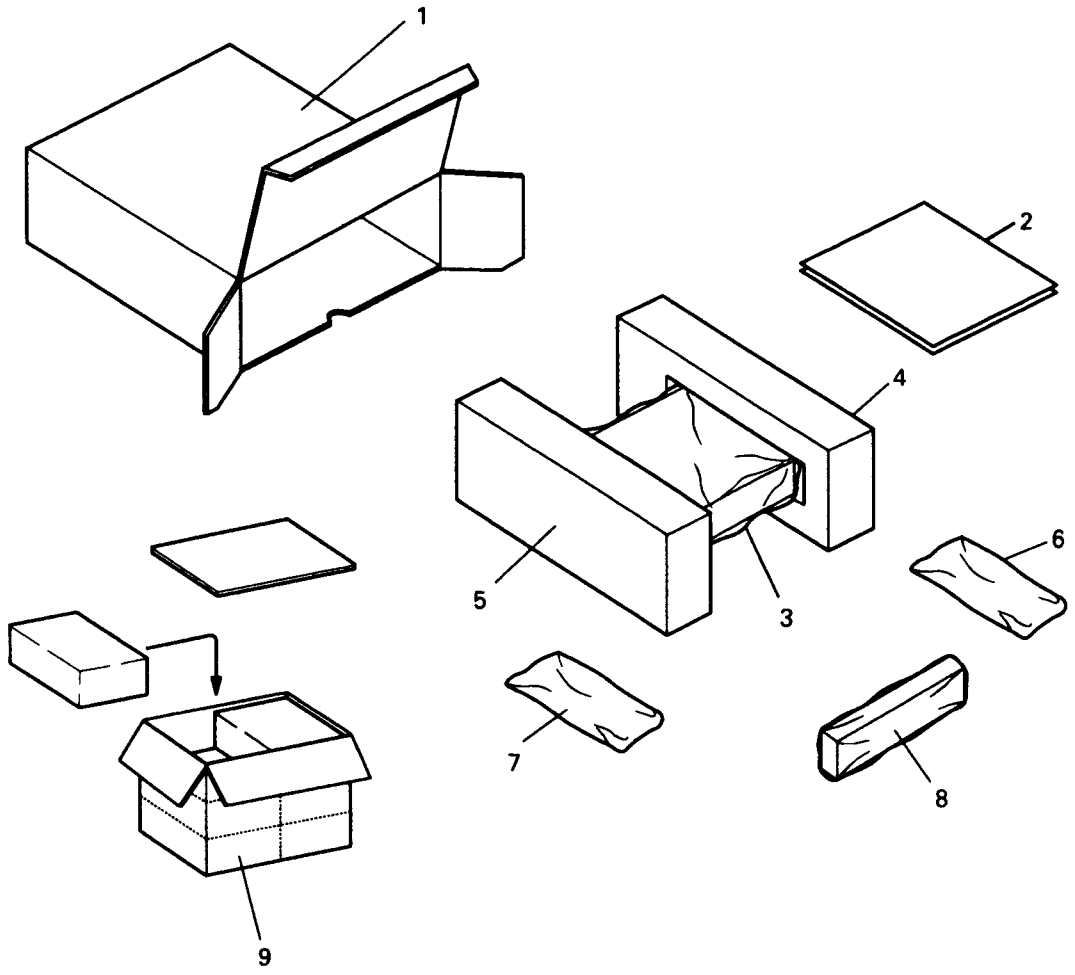


Fig.37

● **Parts List(KEH-P6200RDS/EW,P6100RDS/EW,P25RDS/EW,P15RDS/EW)**

*:Non Spare Parts

Mark No.	Description	KEH-P6200RDS/EW Part No.	KEH-P6100RDS/EW Part No.	KEH-P25RDS/EW Part No.	KEH-P15RDS/EW Part No.
	1 Carton	CHG2586	CHG2551	CHG2588	CHG2587
	2-1 Owner's Manual	CRD1821	CRD1821	•••••	•••••
	2-2 Owner's Manual	CRD1822	CRD1822	•••••	•••••
	2-3 Installation Manual	CRD1823	CRD1823	•••••	•••••
*	2-4 Passport	CRY1013	CRY1013	•••••	•••••
*	2-5 Warranty Card	CRY1071	CRY1071	•••••	•••••
	3 Polyethylene Bag	CEG1196	CEG1196	CEG1196	CEG1196
	4 Protector	CHP1708	CHP1708	CHP1708	CHP1708
	5 Protector	CHP1709	CHP1709	CHP1709	CHP1709
	6 Cord Assy	CDE4394	CDE4394	CDE4395	CDE4395
	7 Accessory Assy	CEA2103	CEA2103	CEA2103	CEA2103
	8 Case	CNS3550	CNS3550	CNS3550	CNS3550
	9 Contain Box	CHL2586	CHL2551	CHL2588	CHL2587

● **Owner's Manual**
● **Installation Manual**

Part No.	Language
CRD1821	English,Italian,French,German,Dutch
CRD1822	Spanish,Finnish,Norwegian,Swedish
CRD1823	Spanish,Finnish,Portuguese,Norwegian,Swedish English,Italian,French,German,Dutch

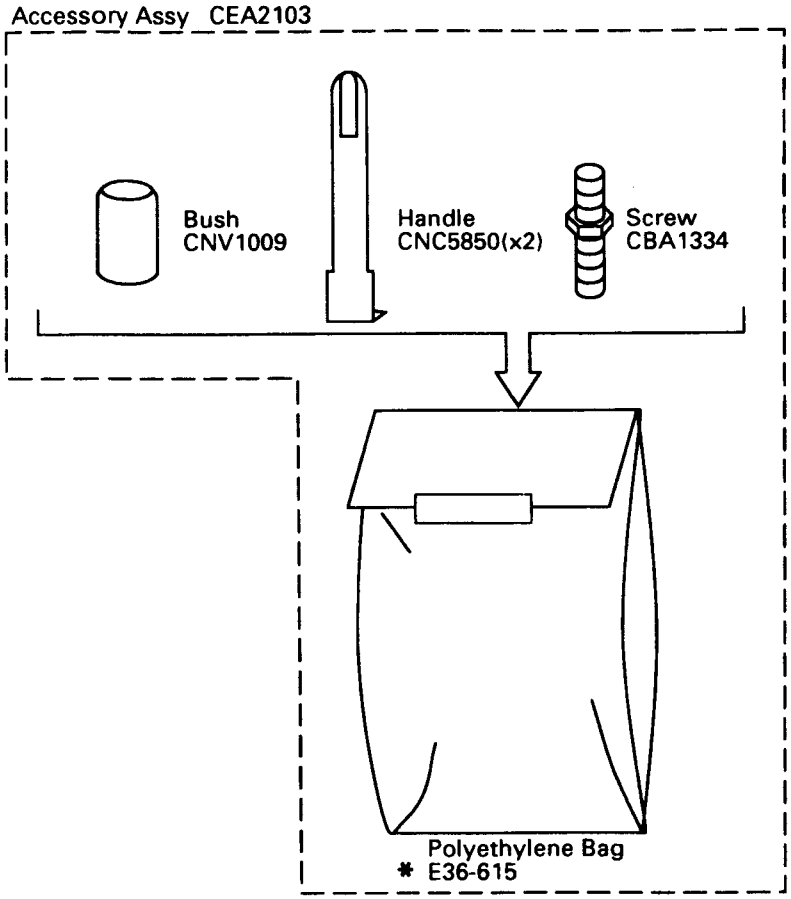


Fig.38

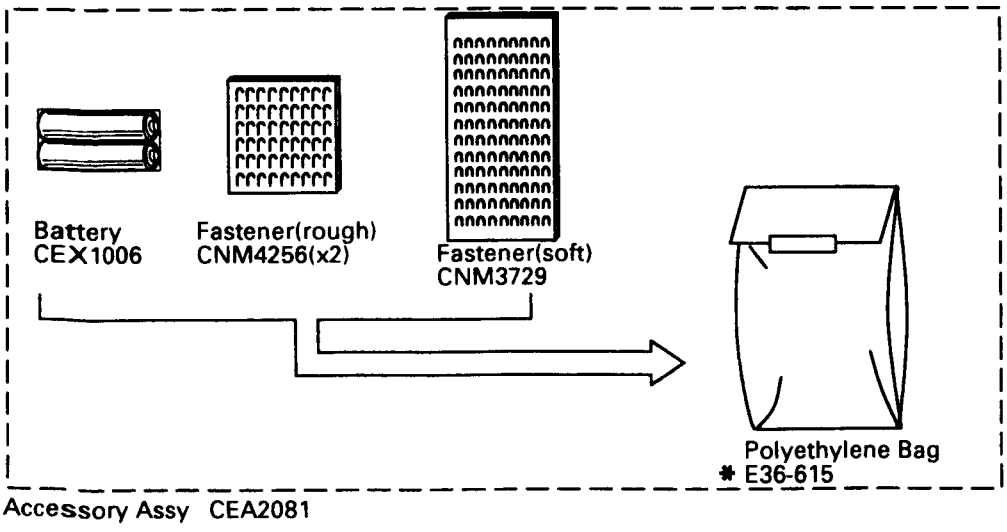


Fig.39

PIONEER
The Art of Entertainment

Service Manual

ORDER NO.
CRT1640

CASSETTE MECHANISM ASSY

CX-631

- **This service manual describes operation of the cassette mechanism incorporated in models listed in the table below.**
- **When performing repairs use this manual together with the specific manual for model under repair.**

Model	Service Manual	Cassette Mechanism Unit	Deck Unit
KEH-P990/UC	CRT1639	EXK3170	CWM3954
KEX-P820/ES	CRT1656		
KEX-P820RDS/EW	CRT1638		
KEH-P9200RDS/EW, X1BEW	CRT1638	EXK3130	CWM3953
KEH-P9250/ES	CRT1656		
KEH-P8200/UC	CRT1639		
KEH-P8200RDS/EW, X1BEW	CRT1638		
KEH-P8250/ES	CRT1656		
KEH-P790/UC	CRT1654	EXK3110	CWM3952
KEH-P7250/ES	CRT1652		
KEH-P7200RDS/EW	CRT1653		
KEH-P7200/UC	CRT1654		
KEH-P7100RDS/EW	CRT1653		
KEH-P6200/UC	CRT1652		
KEH-P6200RDS/EW	CRT1653	EXK3105	CWM4212
KEH-P6100RDS/EW	CRT1653		
KEH-P590/UC	CRT1652	EXK3100	CWM3951
KEH-P5250/ES	CRT1652		
KEH-P5200/UC	CRT1652		
KEH-P25RDS/EW	CRT1653		
KEH-P15RDS/EW	CRT1653		

CONTENTS

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O.Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 300 Allstate Parkway Markham, Ontario L3R OP2 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY.LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL:[03]580-9911

K-FFD.DEC. 1994 Printed in Japan

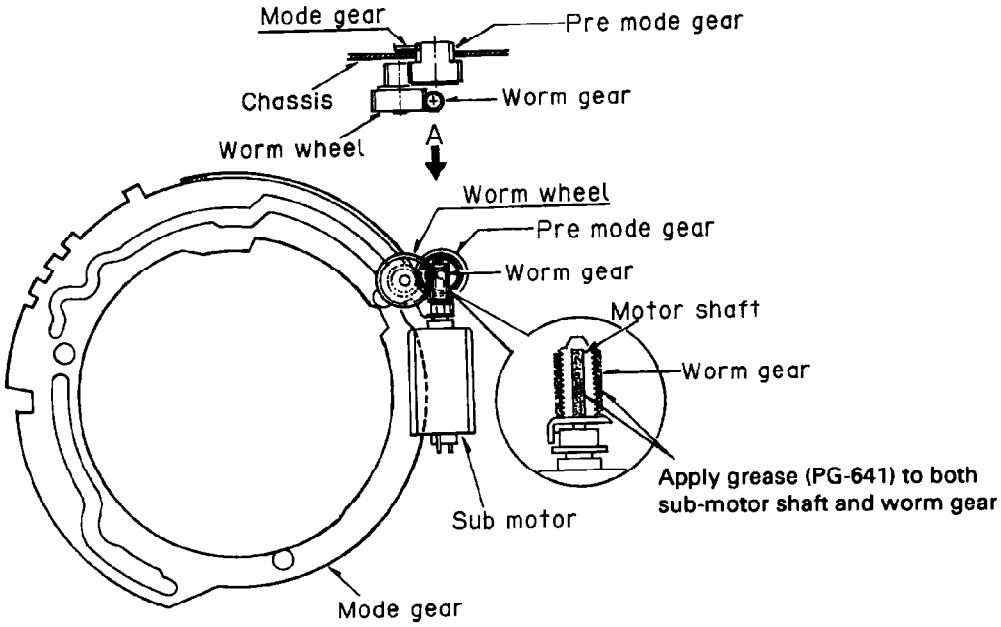
1. MECHANISM DESCRIPTION AND GREASING

1.1 DRIVE OPERATION

Inserting the cassette tape→Draw in→Put it down→Release←→Forward play←→REW←→FF←→Reverse play

Eject←Draw out←Lift←

All motive force(except the force for running a tape) is supplied by sub-motor.



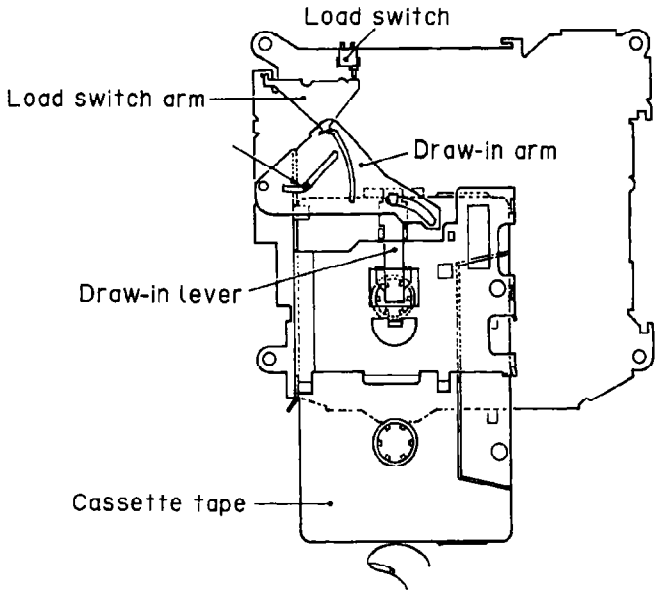


Fig.1

1.2 LOADING AND EJECT OPERATIONS

● Loading the Cassette Tape

1.Push the cassette tape by finger.
2.The draw-in lever is pushed by the cassette tape. And the load switch is turned on by way of the draw-in arm and of the load switch arm.
3.The sub-motor starts running.
4.The mode gear turns in direction (1).
5.The put-down driving lever moves in direction (2).
6.Move the put-down lever operation shaft in direction (3) and turn the draw-in arm in direction (4).
7.The cassette tape is loaded.

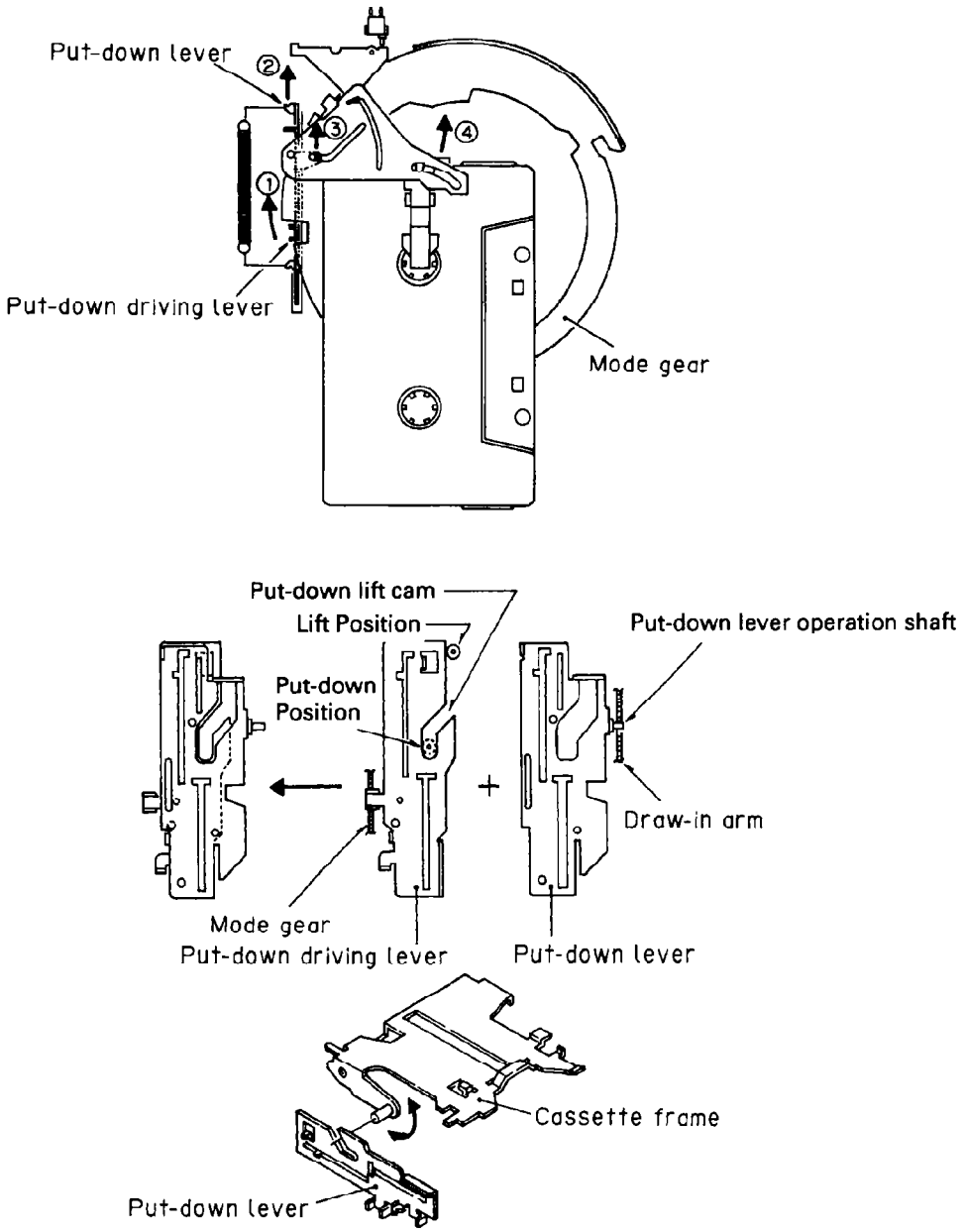


Fig.2

● Ejecting the Cassette Tape

1.The sub-motor starts running in the direction opposite to that in loading.
2.The mode gear turns in direction (5).
3.The put-down driving lever moves in direction (6).
4.Move the put-down lever operation shaft in direction (7) and turn the draw-in arm in direction (8).
5.Pull the load switch arm toward you and turn off the load switch.
6.The sub-motor stops.
7.The cassette tape is ejected.

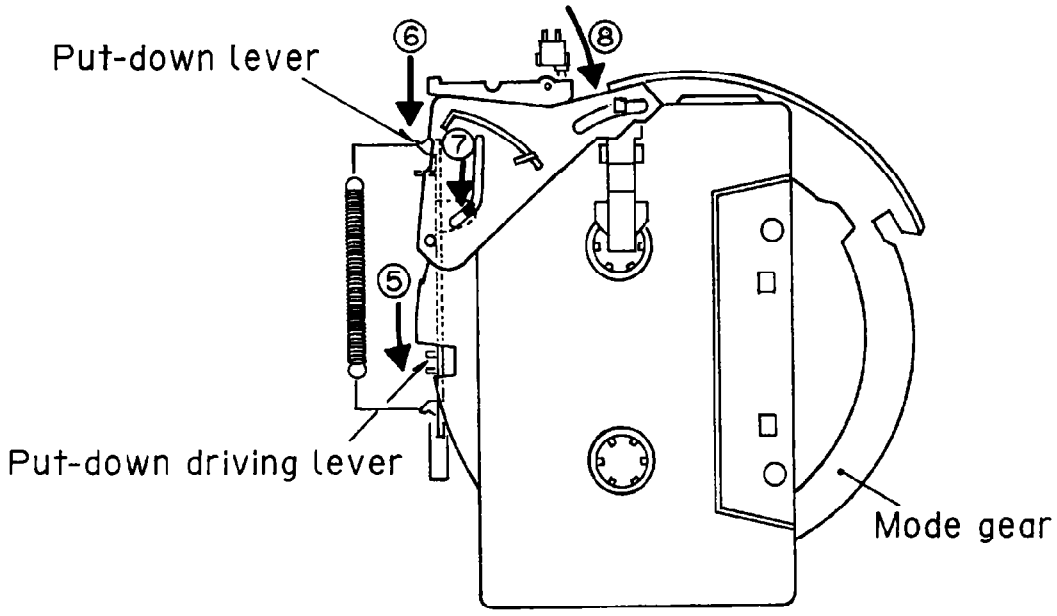


Fig.3

1.3 MODE CHANGEOVER

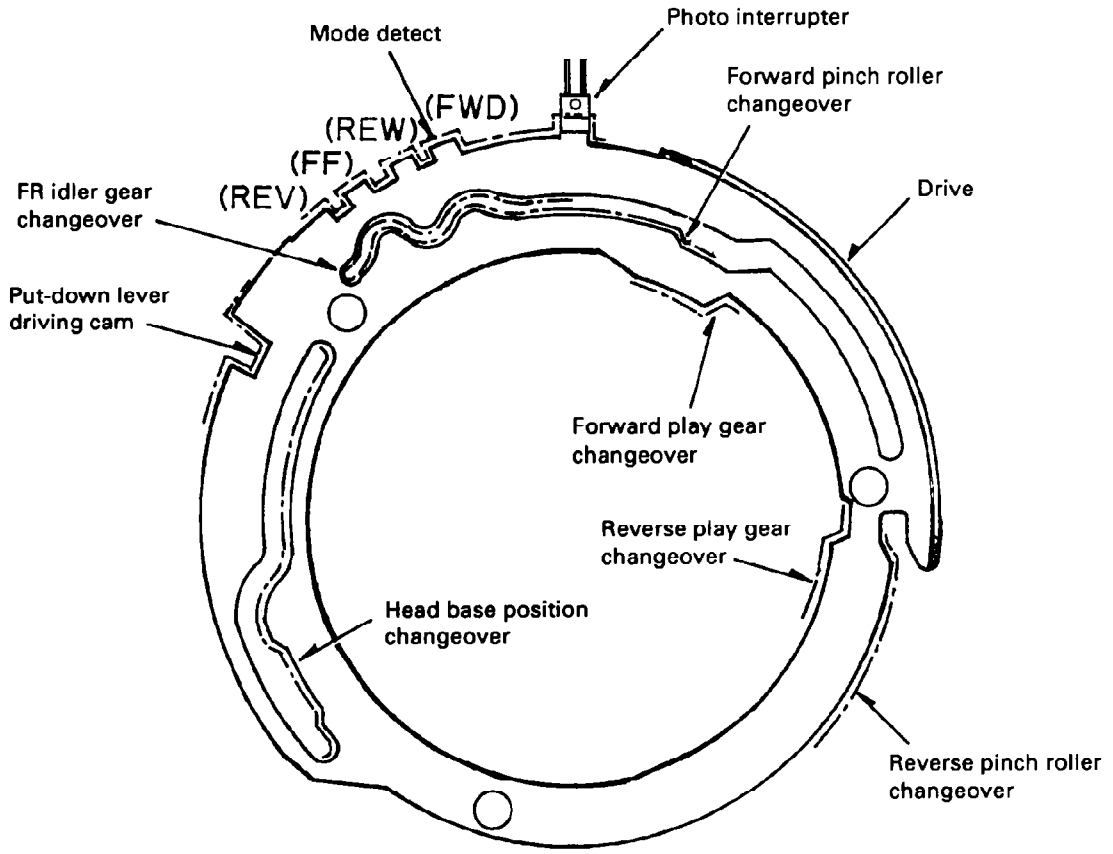


Fig.4

The mode gear is rotated by rotation of the pre mode gear which is driven by the sub-motor. The modes are in series in the order of "release"←→"forward play"←→"REW"←→"FF"←→"reverse play". The rotation of the mode gear makes changeover of the head position, press contact between the pinch rollers(forward, reverse), the rewinding reel rotation, etc.

The actions to be performed in the separate mode are show in Fig.5 through 9.

● **Release**

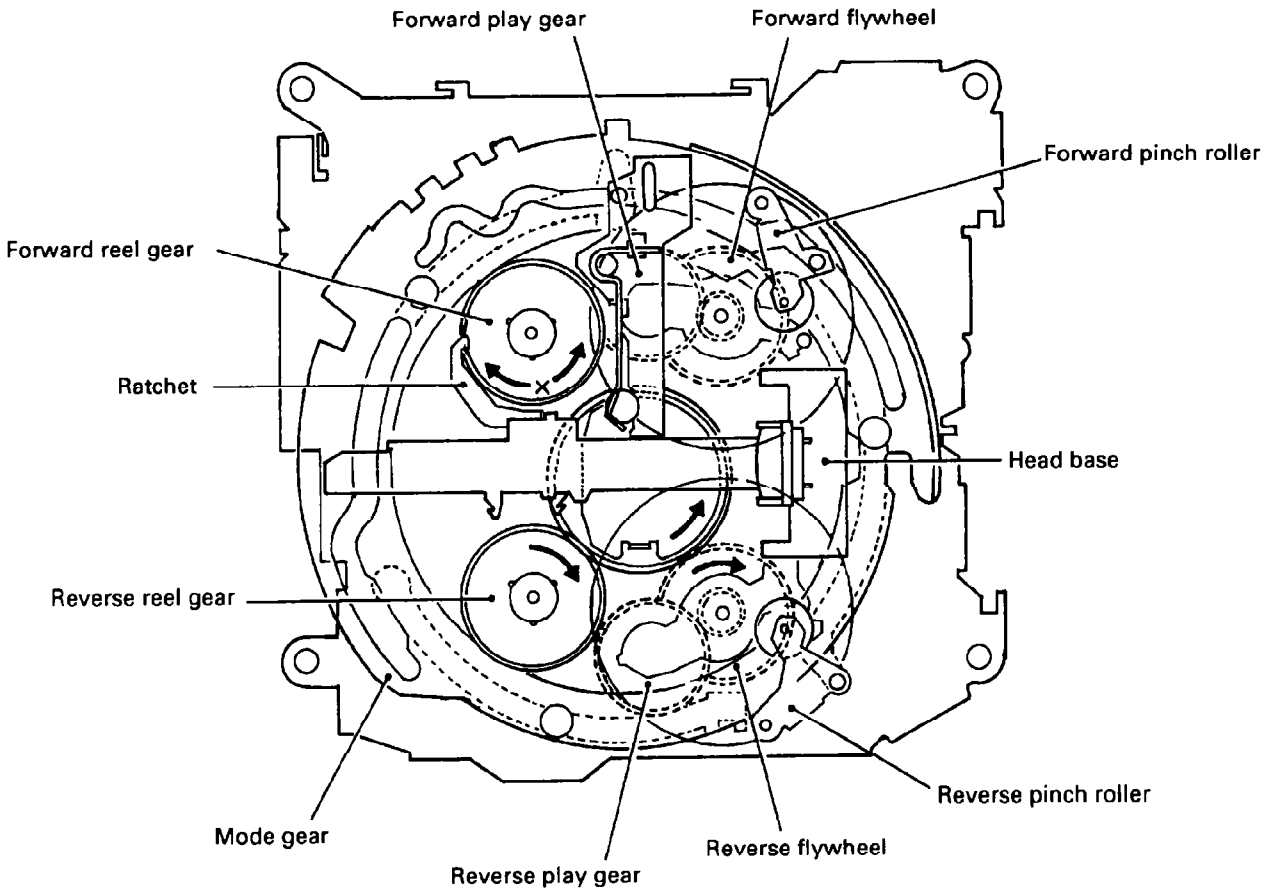


Fig.5

● **Forward Play**

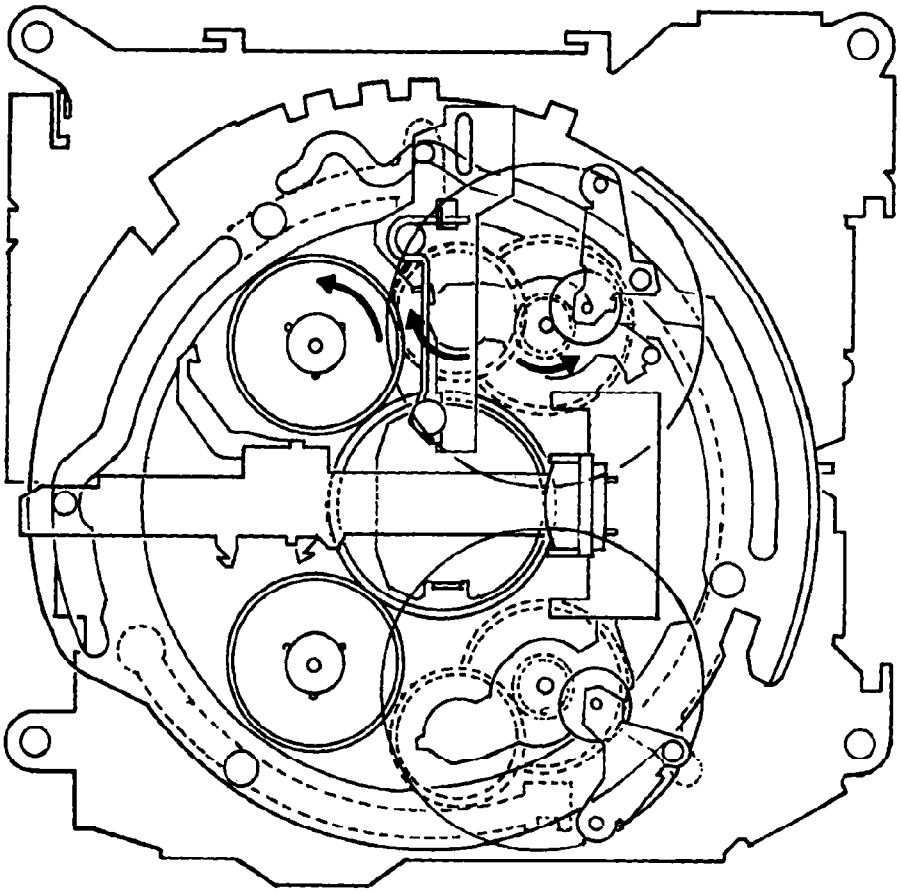


Fig.6

● REW

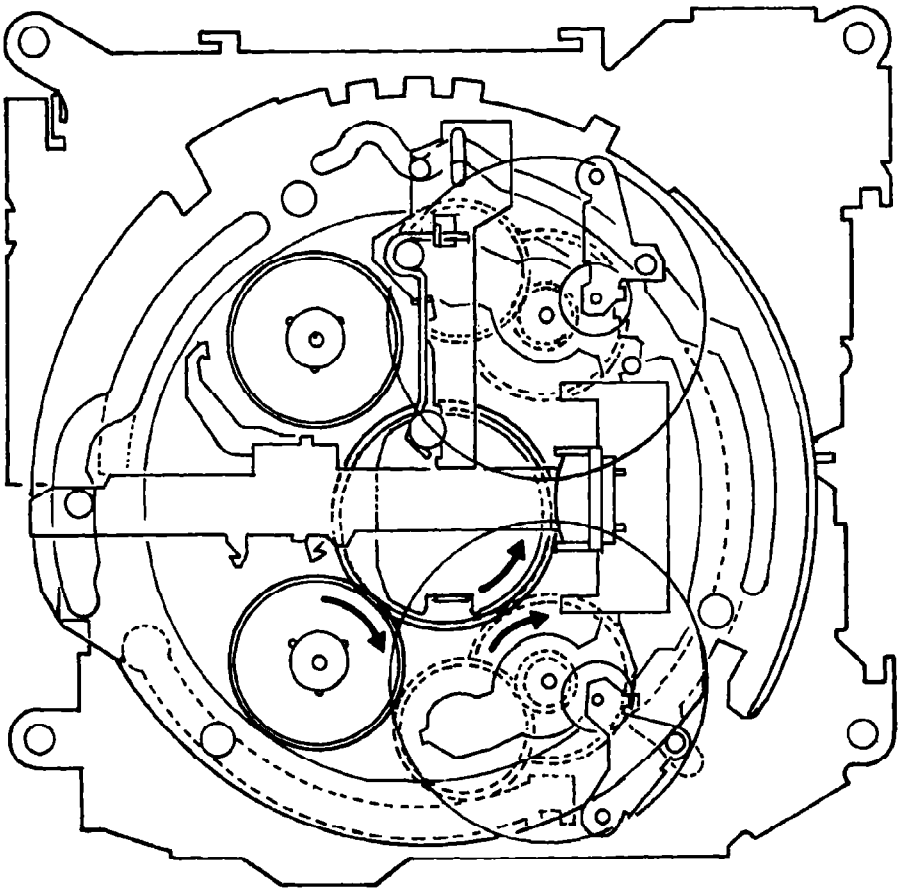


Fig.7

● FF

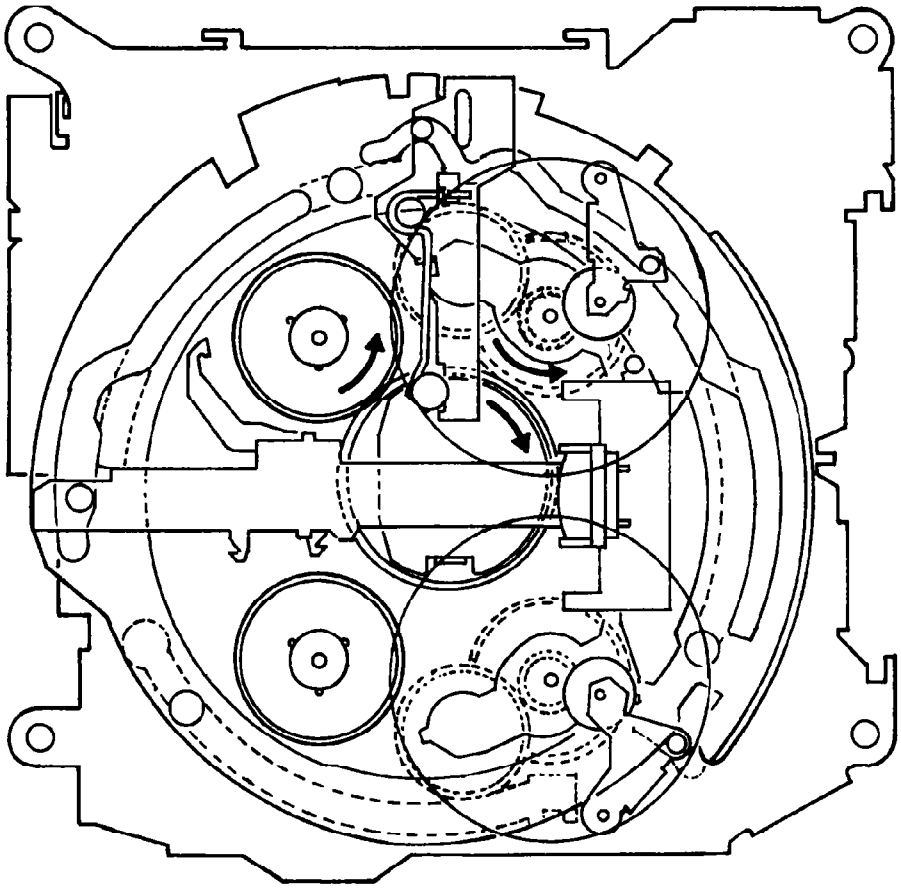


Fig.8

● **Reverse Play**

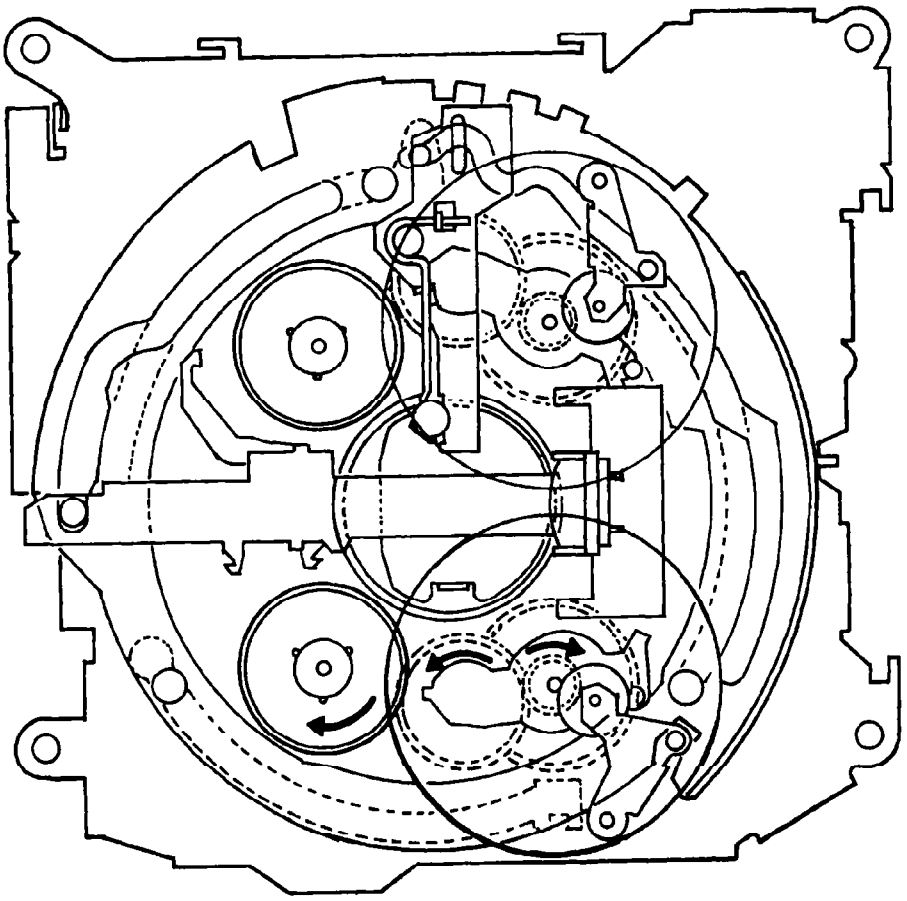


Fig.9

2. DISASSEMBLY

● How to Remove the Cassette Holder

1.Remove the washer and two arms.
2.Remove the two screws, and then remove the guide assy.
3.Straighten the frame unit pawl, and remove both holder and frame unit.

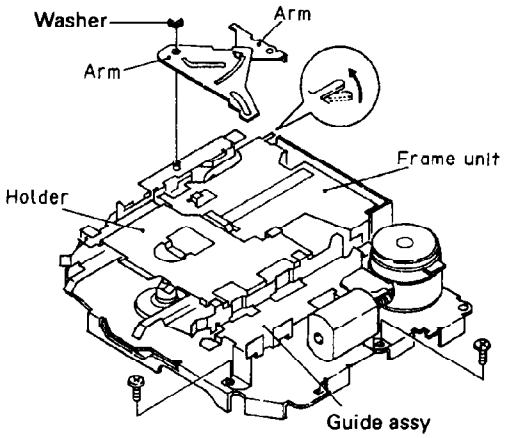


Fig.10

● How to Remove the Reel Unit

1.Remove the washer.
2.Push the arm in the arrow-marked direction and remove the reel assembly.

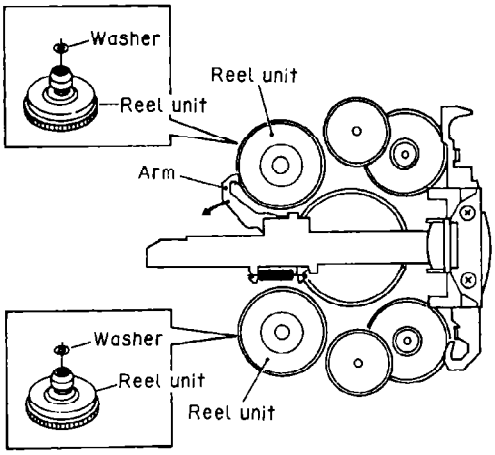


Fig.11

3. ADJUSTMENT

3.1 TAPE SPEED ADJUSTMENT

● To Adjust

Reproduce NCT-111 (3kHz, -10dB). Adjust the semi-fixed resistor so that frequency counter shows 3015Hz(+75Hz, -45Hz).

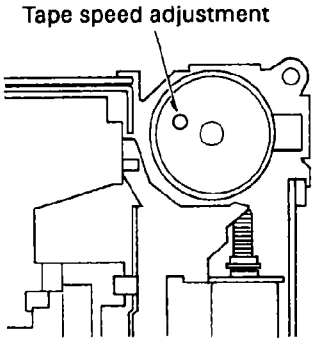


Fig.12

3.2 CHECK POINTS OF CASSETTE MECHANISM

Confirm the following items when replacing parts of the cassette mechanism .	■ Tape speed deviation: 3,000Hz +90Hz, –30Hz (4.76cm/s +3%, –1%) Using an NCT-111, measure the speed at the start and end of winding and take the maximum values.If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5–6 seconds.	■ Wow and flutter: Less than 0.15%(WRMS) Using the NCT-111, measure the wow and flutter at the start and end of winding and take the maximum value. If values indicated by the pointer very considerably, adjust to 70 % of the minimum and maximum values. Measuring time shall be 5–6 seconds.
■ Fast forward and rewinding time: 100–120 seconds Using a C-60, set to fast forward and rewind, and measure the time with a stop watch.	■ Winding torque: 45–70 g·cm Using a cassette type torque meter (100 g·cm), measure the minimum value while in the play mode. Measuring time shall be 2.5–6 seconds.	■ F.F. torque: More than 50 g·cm Using a cassette type torque meter (130 g·cm), measure the value when the tape stops in the F.F. mode.
■ REW torque: More than 50 g·cm Using a cassette type torque meter (130 g·cm), measure the value when the tape stops in the REW mode.	■ Back tension torque: 1.5–5.5 g·cm After setting the REW mode without loading a cassette tape for 5 minutes, measure the back tension torque in the play mode, using a cassette type torque meter.	